PB-244 923

REVIEW OF THE MUNICIPAL WASTE WATER TREATMENT WORKS PROGRAM

Environmental Protection Agency
Washington, D. C.

30 November 1974

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PB244423

BIBLIOGRAPHIC DATA SHEET	1. Report No. EPA-R5-73-[illegible]	2.	3. Recipient's Accession No.
4. Title and Subtitle: Evaluation of the Municipal Waste Water Treatment Needs Program			5. Report Date: April 1973
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address: [illegible] Washington, D. C. [illegible]			10. Project/Task/Work Unit No.
			11. Contract/Grant No.
12. Sponsoring Organization Name and Address: U.S. Environmental Protection Agency Washington, D. C. [illegible]			13. Type of Report & Period Covered
			14.

15. Supplementary Notes

16. Abstracts: The primary goal of the needs program is to estimate the total cost of meeting additional municipal waste water collection and treatment requirements. The program design, implementation, projection of needs, and findings are presented. The report includes a review of recommendations designed to improve the program, making it adequate to measure progress toward those goals.

17. Key Words and Document Analysis. 17a. Descriptors

Pollution control
Waste treatment

17b. Identifiers/Open-Ended Terms

Pollution control, Treatment needs Program

17c. COSATI Field/Group

PRICES SUBJECT TO CHANGE

18. Availability Statement	19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 58
	20. Security Class (This Page) UNCLASSIFIED	22. Price $4.25

FORM NTIS-35 (REV. 10-73) ENDORSED BY ANSI AND UNESCO THIS FORM MAY BE REPRODUCED USCOMM-DC 8265-P74

... OF THE MUNICIPAL WASTE WATER TREATMENT WORKS PROGRAM

PB 244 923

REVIEW OF THE MUNICIPAL WASTE WATER TREATMENT WORKS PROGRAM

by
CONSTRUCTION GRANTS REVIEW GROUP

NOVEMBER 30, 1974

U.S. ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

EXECUTIVE SUMMARY

EPA personnel have conducted an in-depth review of the grants program for construction of municipal waste water treatment facilities. The study examined EPA policies, procedures, and performance with regard to the major goals of the program.

The overall primary goal of the program is to achieve the most *cost-effective* abatement of municipal waste water pollution through the proper planning, design, construction, and operation of treatment works. This goal, as far as EPA is concerned, has at least five programmatic subgoals:

- To *manage* the program in an *efficient* manner without unnecessary red tape and with sufficient resources to ensure adequate performance.
- To ensure that projects are constructed in a *timely manner* by expeditiously obligating funds.
- To ensure that the projects supported *are environmentally sound* by managing the facilities planning and environmental impact statement process in an effective manner.
- To safeguard the *program's integrity* by detecting and deterring fraud and other irregularities.
- To preserve and protect the primary responsibilities and *rights of the States* in the control of water pollution.

This report includes a series of recommendations designed to ensure that EPA is making adequate progress towards these goals, including certain program refinements, such as more active Agency involvement in the early stages of the process, and increased emphasis on the post construction stage.

The most important finding of the study, however, is that the real problem is not so much a function of the program as defined in current EPA regulations and guidance. Rather, the real problem is that the program is not being implemented, largely due to manpower constraints.

The Construction Grants Program was greatly expanded by the passage of the 1972 Federal Water Pollution Control Act Amendments, which provided for $18 billion to be spent over fiscal years 1973-1976, but did not provide for a proportionate increase in EPA employees. Faced with this situation, each EPA Regional Office has interpreted the program guidance differently, trying to spread limited staff resources over the growing workload. As a result, there are 10 programs functioning reasonably well, but in no instance are all the required program elements fully implemented.

To aggravate the problem, the number of applications can be expected to rise sharply. The States have adjusted to the increased Federal funding levels and are now preparing plans for applications under the new regulations. Compared to FY '74, the

number of projects is projected to increase by 50 percent in FY-75 and by 100 percent in FY-76. Since the FY-75 and FY-76 projects are likely to be more complex because of the new regulations, the workload can be expected to increase disproportionately.

There are two major options for resolving this situation and assuring that the program as defined by the 1972 Amendments and regulations is fully and uniformly implemented. The first option is to devote more manpower to the program so that all tasks are performed satisfactorily for each project. This would require almost a doubling of the current staffing levels (1,650 in FY-75 as opposed to 848 today). Of the 455 additional personnel for FY-75, 138 are estimated as required to improve the management of the program and 317 to process the additional applications expected.

The second option is to rely more on the States to carry out the Federal program goals. Currently, EPA certifies States to review plans and specifications, operation and maintenance manuals, bid tabulations and change orders. By the end of FY-75, approximately 18 to 40 States should have been certified to perform these tasks. This option would go beyond the certification of these few functions.

First, all functions that can be delegated under existing law would be delegated to the States as soon as possible. The responsibilities retained in EPA would essentially be the processing and approving of grants. Second, it would be necessary to enact legislation to provide Federal funds to defray the additional administrative expenses incurred by States accepting delegations. Third, it would eventually be desirable to pass legislation changing the existing program into something closer to a block grant program. Basically, under this approach, Federal funds would be given to each State for the purpose of making grants to municipalities according to Federal standards.

In the consideration of this option it is obvious that delegation of additional responsibilities to the States could not be accomplished overnight. Many States do not currently have either the capability or the inclination to assume these functions. The development of that capability would take time. It is estimated that approximately 5, 15, and 35 States would assume these responsibilities in fiscal years '75, '76, and '77 respectively, reducing EPA workload by 10, 30, and 50 percent. EPA would continue to perform all functions in a satisfactory manner in those States that do not assume delegatable functions. A transition period of several years could be expected, during which EPA would require additional staff to manage the program effectively. In the event that EPA is unable to obtain resources to implement the first option, the Work Group recommends implementation of this second option.

A summary of the report's major findings and recommendations follows:

Program Management

- Greater emphasis is recommended for the facility planning and post-construction phases.
- Direct and active involvement by EPA officials through a series of conferences with the grantee and his consultant at various stages of the process will improve communications and reduce project "uncertainty."

Environmental Integrity

- It is not true that NEPA requirements for environmental assessments, appraisals, and impact statements always mean program delays.
- Future environmental assessments and impact statements will not mean significant program delays if:

  Environmental planning is fully integrated into facility planning.

EPA demands good facilities planning from grant applicants.

A series of objective threshold criteria is established for determining when to prepare Environmental Impact Statements.

Program Integrity

- To date, only a few cases involving fraud have come to light, but the potential for future irregularities is enormous, and cannot be ignored.
- A coordinated system of controls involving grantees, the States, and EPA is needed to provide:

  Improved guidance for grantees.

  Expanded construction inspection and audit programs.

  Improved education for EPA personnel and grantees.

  Improved procedures for reporting and investigating suspected cases.

  Improved controls over selection of consultants and contractors.

State Delegations

- The Agency should take the steps necessary to transfer administrative functions to the States.
- This delegation of tasks to States will take several years because many States do not now have the capability or inclination to assume these tasks.
- A means of reimbursing States for administrative functions performed is needed.

Management and Organization

- The Agency has not been doing an adequate job of managing the construction grants program.
- Many specific recommendations throughout the report are designed to improve management of the program.
- The current program organization is largely adequate, and only minor changes are recommended:

  Improved Headquarters accountability for the program functions.

  Closer relationships between Regions and States.

Procedural Guidance

- A comprehensive Construction Grants Manual should be developed; it would present a clear, concise description of the requirements to be met by Federal, State, and local agencies.

PREFACE

Since enactment of the 1972 Amendments to the Federal Water Pollution Control Act, various aspects of the grants program for construction of municipal waste water treatment works have been studied by both EPA and the General Accounting Office. By late 1973, however, no overall review had been undertaken. Consequently, the Assistant Administrators for Water and Hazardous Materials and for Planning and Management agreed in December 1973 to undertake an extensive review of the program in order to (1) assess the performance of the Agency in administering the construction grants program under the new requirements of the 1972 Amendments, and (2) examine alternative means for modifying policies, procedures, and staffing patterns to provide a more rational basis for decision-making.

The evaluation was conducted primarily by the Construction Grants Review Group, which consisted of members from the Office of Water Program Operations, Office of Water Planning and Standards, Office of Planning and Management, and the EPA Regions.[1] The Program Evaluation Division of the Office of Planning and Management have assisted in gathering and analyzing data, and in drafting this report.

[1] Headquarters Review Group Members: Gary Dietrich, Chairman, Office of Resources Management; Ken Johnson and Mike Quigley, Office of Water Program Operations; Jim Meek, Office of Water Planning and Standards; Alex Greene, Office of Administration; Truman Price, Office of Planning and Evaluation.

Regional Review Group Members: Stuart Peterson, Region I; David Leong, Region II; Fred Grant, Region III; Harold Hopkins, Region IV; Todd Cayer, Region V; Ancil Jones, Region VI; Ronald Ritter, Region VII; Harvey Hornberg,Region VIII; Richard Coddington, Region IX; Roy Ellerman, Region X.

Support: James R. Janis, George Alapas, Paul Battey, Carl Ettinger, Frank Lane, and Larry Reed, Program Evaluation Division; Paul Martin, Grants Administration Division; Malcolm Stringer, Office of Audit.

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	iii
PREFACE	viii
I. INTRODUCTION	
Legislative History	1
Construction Grants Program	3
Organization of the Report	5
II. PROGRAM MANAGEMENT	
Current Problems	7
Pre-application Stage	8
Facilities Planning Stage (Step 1)	10
Design Stage (Step 2)	13
Construction Stage (Step 3)	15
Operation and Maintenance Stage	16
III. OPTIMIZING OBLIGATIONS	
Past and Predicted Performance	19
Impact of Administrative Practices and Program Requirements	21
Relationships of Obligations to Expenditures, Employment, and Economic Activity	24
IV. ENVIRONMENTAL INTEGRITY	
The Current Process	25
Problems With the Current Process	26
Operating Issues	29
Conclusions and Recommendations	31
V. PROTECTING PROGRAM INTEGRITY	
Guidance on Desirable Practices	33
Selection of Consultants and Contractors	35
Education of EPA, State, and Grantee Personnel	38
Selected Reviews	39
Project Inspections	40
Independent Audits	41
Reporting and Investigation	45
VI. DELEGATION AND CERTIFICATION	
Current State Involvement	48
Prospects for Expanding Delegations	50

Page

VII. ALTERNATIVE OPERATING STRATEGIES
Basis for Workload Estimates 53
Strategy I 55
Strategy II 60
Strategies III and IV 61
Discussion and Recommendations 64

VIII. MANAGEMENT AND ORGANIZATION
Current Organization 71
Current Problems 73
Constraints 74
Alternatives - Headquarters 76
Principles of Management and Organization - Regions 78

IX. PROCEDURAL GUIDANCE
Need for Procedural Guidance 81
Existing Procedural Guidance 83
Construction Grants Manual 84

Appendix A: Results of Study to Determine Adequacy of Environmental Assessments and Appraisals 91

I. INTRODUCTION

Although the control of water pollution is essentially a local responsibility, the past 25 years have witnessed a rapid expansion of the Federal role. Beginning with provisions for research, technical assistance and financial incentives to State and local entities, national legislation has increasingly provided direct authority for the Federal Government to set standards, establish planning and other requirements, and take enforcement actions.

Legislative History

Federal legislation affecting water pollution control stretches back to the nineteenth century. The Water Pollution Control Act of 1948, however, represented the first major effort aimed specifically at this area. The 1948 Act recognized the primary rights and responsibilities of the States in water pollution control, and this is still the national policy. At the same time, the Act provided research support and financial assistance to States, municipalities, and interstate agencies for pollution studies and facilities planning. A program of construction loans was also included, but it was never implemented because supporting funds were never appropriated.

The first effective program to financially aid communities in the construction of waste treatment works was instituted by the Federal Water Pollution Control Act of 1956. The grants covered 30 percent of the project cost, and the total grant was limited to $250,000. Because of the funding ceiling, only small communities were generally able to take advantage of the program and appropriations to implement the Act's provisions never exceeded $50 million annually. Even then, the effect of the initial program on the quality of the Nation's waters was minimal, it incorporated many elements of the present municipal construction grants program.

An effort was made in 1960 to expand the funding of the program from $50 million to $90 million annually. President Eisenhower vetoed the measure, primarily on grounds that (1) the control of municipal pollution is essentially a local responsibility and (2) a commitment to large-scale, long-term Federal support would tempt municipalities to delay water pollution abatement efforts while they waited for Federal funds.

The 1960 Water Pollution Control Act Amendments considerably expanded and redirected the program. Dollar ceilings for individual projects eligible for Federal grants were removed, effectively opening the program to cities of all sizes. To encourage additional State participation, the Federal share of projects costs was increased to 40 percent if the State agreed to pay at least 50 percent of the estimated project costs. The share was increased to 50 percent if the State agreed to pay at least 33 percent of the costs of all its projects receiving Federal grants, and if enforceable water quality standards had been established for the water into which the project would discharge. The Federal share for projects conforming with comprehensive metropolitan plans was increased by 10 percent, which raised the maximum level Federal cost sharing to 55 percent. Appropriations were increased from $103 million in 1960 to $1 billion in 1971. Reimbursement of State and local funds up to the full Federal share from future Federal funds allotments was authorized if adequate Federal funds were not currently available. More funds were made available to the more populous States.

The most extensive and far-reaching amendments were enacted in 1972 (PL 92-500). They mark the threshold of a firm Federal commit-

ment, under the leadership of the U.S. Environmental Protection Agency, to eliminate pollution of the Nation's waterways by municipal wastewater treatment works.

In order to provide a basis for control, the 1972 Amendments expanded or created a number of planning requirements. Of particular importance is the State-wide planning process called for by Section 303(e). Water quality management plans prepared under this process are the central tools the States use to administer their water quality programs. By establishing priorities and schedules of action, such plans help direct resource allocations, construction grant priorities, and area-wide planning. Basin plans, designed to identify water quality problems and their relative severity, are the building blocks of the State planning process. Basin plans include an assessment of needs for publicly owned treatment works, an inventory and ranking of significant municipal and commercial discharges, schedules or targets for compliance, and effluent requirements. Areawide planning under Section 208 is to be conducted by selected planning agencies in designated areas that have water quality problems requiring more than secondary treatment for municipal wastes. Section 208 planning in other areas is to be conducted by the States. The planning is limited primarily to metropolitan areas where local governments have agreed to operate a coordinated waste treatment management system, or have formally indicated their interest in such a system. Facilities planning, required by Section 201, constitutes Step 1 of the three-step construction grants process and is covered in some detail in Chapter II.

Consistent with needs and problems identified in the planning process, discharges of waste water are required to meet certain standards of control by 1977. Ambient water quality standards were required for interstate waters by the 1965 Act. These standards, however, proved difficult to enforce since the specific linkage between a point source and the general quality of the water was difficult to establish. Although the 1972 Amendments expanded coverage of ambient standards to intrastate waters as well, the legislation placed primary emphasis on controlling pollution at its source through limiting the effluents discharged. Effluent limitations are developed for municipal dischargers at a level of control that is basically equivalent to secondary treatment. In certain river reaches, a higher level of treatment may be required to meet water quality standards.

To meet effluent limitations and water quality standards, municipal dischargers are controlled primarily through permits issued under the National Pollutant Discharge Elimination System (NPDES). Permit conditions are designed essentially to limit the quantity and concentration of pollutants being discharged into a waterway. An industry piping its waste into a municipal plant is not required to obtain a NPDES permit. The municipal permit, however, will specify effluent limitations for both industrial and municipal components. The municipality is responsible for imposing pretreatment requirements on industrial effluent, if necessary.

Compliance with permit conditions is to be monitored closely. Municipalities are required to report regularly on the nature and amounts of their pollutant discharges, and these reports will be spot checked with field visits by Federal and State officials. The operation and maintenance of plants will also be inspected regularly.

The 1972 Amendments replaced former enforcement authorities with a new regulatory scheme based largely on NPDES permits. Under Section 309, EPA can use a compliance order or bring a civil action for a wide range of violations. Included are violations of effluent limitations, water quality related effluent limitations, or any permit condition. In calendar year 1973, 13 actions were pending or completed that involved municipal waste water discharges.

To encourage this broad program, the 1972 Amendments expanded the Federal aid available to localities. Included among its provisions are:

- Grants for the various planning efforts.
- Technical assistance, provided mostly in areas of design, construction, and enforcement.
- Technical information developed largely through research, demonstration, and monitoring programs.
- Grants to support operation of State and local water pollution control agencies.
- Training for State and local personnel.

- An Environmental Financing Authority to help local governments raise their share of the costs of treatment facilities.

- Federal share of costs for planning, designing, and constructing waste water treatment facilities is 75 percent.

- Funds totaling $1.75 billion to reimburse local governments for treatment plants constructed earlier in anticipation of Federal grants.

- Construction grants totaling $18 billion over 4 years, of which $7 billion have been allotted for Fiscal Year 1973, $3 billion for 1974, and $3 billion for 1975.

The Construction Grants Program

The construction grants program is one element of the comprehensive national effort to clean up the Nation's waterways. Every two years the States conduct a "Needs Survey" to determine the number and cost of facilities they need to achieve water quality standards. Due to the late passage of the 1972 Amendments a survey was done in 1973 as well. A cursory review of the 1973 and 1974 Needs Surveys identified a number of deficiencies that should be studied in detail before the next survey. Based on the Needs Survey, the Federal funds available in each fiscal year are allocated among the States. Each State, with EPA approval, establishes the order in which potential projects are to be funded. Localities that appear on the State Priority Lists may apply for grants.

Rather than awarding a single grant to an applicant for the Federal share of a project, EPA is authorized to enter into an agreement to pay the Federal share of costs of the separate stages of project development. Thus, EPA will incur contractual obligations for the Federal share of the costs of (1) preliminary plans and studies and other eligible preliminary work, (2) design plans and specifications, and (3) construction of the waste treatment facilities. EPA is also authorized to provide grants for segments of treatment works under construction. Payments against these contractual obligations are made to the applicant as all, or parts of each of these elements, are completed. Once a plant is completed, its operation and maintenance are the responsibility of the municipality. EPA and the States, however, continue to make inspections and to provide training and technical assistance to ensure compliance with permit conditions and the proper operation of the user charge and industrial cost recovery programs.

Organization of Report

The construction grants program falls into five stages (Table I-1), which are examined in detail in the body of the report. The report is divided into essentially two sections or groupings of chapters. The first section, consisting of Chapters II-VI, defines an "adequate" program in terms of requirements and program goals. The second, consisting of Chapters VII-IX, presents overall program guidance in the form of alternative operating strategies and attendant management, organizational, and procedural recommendations. The recommendations made throughout the body of the report are highlighted in the Executive Summary.

Defining an Adequate Program. The construction grants program is complex, attempting to be responsive to a myriad of legislative and administrative requirements. To facilitate its review and provide a sense of priority to program elements, the Review Group aggregated these many requirements into a single principal program goal: the achievement of the most cost-effective abatement of municipal waste water pollution through the proper planning, design, construction, and operation of treatment works. This principal goal includes five subgoals:

- To *manage* the program in an *efficient* manner without unnecessary red tape and with sufficient resources to ensure adequate performance.

- To ensure that projects are constructed in a *timely manner* by expeditiously obligating funds.

- To ensure that the projects supported are *environmentally sound* by managing the facilities planning and environmental impact statement process in an effective manner.

- To safeguard the *program's integrity* by detecting and deterring fraud and other irregularities.

Table I-1

TYPICAL STAGES OF DEVELOPMENT IN MUNICIPAL WASTE WATER TREATMENT WORKS PROJECTS[1]

Preapplication stage	Facilities planning stage	Design stage	Construction stage	Operation and Maintenance stage
1. State places project on priority list 2. Applicant selects consultant 3. Applicant and consultant have pre-application conference with State and EPA	1. Application for Step 1 grant submitted to State and EPA for review and approval 2. Consultant prepares facilities plan 3. EPA and State review and approve facilities plan 4. EPA prepares environmental impact statement, if necessary, or declares none is needed	1. Consultant generally prepares materials for Step 2 grant agreement; submits it to State and EPA for approval 2. Consultant prepares plans and specifications 3. EPA and State review and approve project plans and specifications	1. Consultant generally prepares materials for Step 3 grant agreement; submits it to State and EPA for approval 2. Grantee advertises for construction bids or bids requested for bidder, submits all bids to grantor from to State and EPA for approval, and upon approval awards contract 3. Project is constructed 4. EPA and State conduct final inspection 5. EPA conducts final audit and makes final payment	1. Plant operated and maintained for life of project 2. State and EPA make O&M or 1 per cent compliance inspections 3. Municipality collects user charges and industrial cost recovery payments

[1] At the present time, and for several years to come, many projects will enter the program for grants at the design or construction stages.

- To preserve and protect the primary responsibilities and *rights of the States* in the control of water pollution.

Discussion of the subgoals and their associated program requirements define what we consider to be an "adequate" construction grants program. This "adequate" program does not substantially depart from the intent of existing operating procedures. In many instances, however, the procedures vary considerably from one region to the next, primarily as a result of staffing limitations and different program priorities.

For purposes of this review, we have elected to define cost-effectiveness as including social, environmental, and non-monetary costs. This is consistent with the description of cost effectiveness analysis contained in the Regulations governing implementation of Title II of the 1972 Amendments. "The most cost-effective alternative shall be the waste treatment management system determined from analysis to have the lowest present worth and/or equivalent annual value *without overriding adverse non-monetary* costs and to realize at least identical minimum benefits in terms of applicable Federal, State, and local Standards for effluent quality, water quality, water reuse and/or land and subsurface disposal" (emphasis added). Under this broad description, cost-effectiveness encompasses costs associated with the timeliness, environmental, and program integrity subgoals.

We have concluded that cost-effective plants (defined in this manner) can result only from the nationally consistent application of the construction grants process as a system of interrelated subgoals. Environmental impacts, for example, cannot be considered as a subject apart, but can only be factored in if they are analyzed as an integrated aspect of the facility planning process.

Chapter II describes the construction grants program in terms of the five stages of project development and operation. The Agency's policies and procedures during each stage are assessed in terms of whether they represent efficient program management.

Requirements and problems associated with the timeliness subgoal are covered in Chapter III. The concepts involved, including the trade-offs between timeliness and cost-effectiveness, are examined.

The subgoal of environmental integrity is discussed in Chapter IV. The discussion begins with a review of the environmental review process. This is followed by an examination of the problems associated with current operating practices. A strategy is then outlined for resolving these problems and structuring a program to assure that environmental factors are meaningfully considered early in the project's development.

The subgoal of program integrity is examined in Chapter V. The term "integrity" is used in this report to mean the avoidance of the broad range of fraudulent activities and other irregularities to which the program is vulnerable. The integrity problems are approached on an overall Federal-State-local basis. The suggested strategy for handling the problems involves an integrated system of activities, including a strong independent audit function.

Chapter VI concludes the discussion of program subgoals by reviewing the effort to transfer major elements of the program to State and local management.

Overall Operating Strategies. Implementation of the "adequate" program will be influenced to a major extent by the availability of resources, management practices, organizational structure, and procedural guidance. These elements of the program are examined in the concluding three chapters of the report.

Chapter VII describes and compares four possible operating strategies for administering the construction grants program. Strategy I summarizes the manpower requirements of the adequate strategy described in Chapters II through VI. This strategy would permit a relatively high achievement of the cost-effectiveness goal and its subgoals. Strategy II, while requiring less staff, could seriously sacrifice achievement of the program goals. Strategies III and IV would reduce EPA staffing needs, but would increase those of the States through the delegation of additional responsibilities.

The management and organizational implications of our findings and recommendations are examined in Chapter VIII. Finally, Chapter IX addresses recommended improvements in procedural guidance.

II PROGRAM MANAGEMENT

The 1972 Amendments to the Federal Water Pollution Control Act charge the Administrator of EPA with implementation of a program of grants for the construction of treatment works. EPA reimburses municipalities and other State and local authorities for 75% of the eligible costs incurred in planning, designing, and constructing waste water treatment facilities that meet a variety of requirements established in the Act. EPA is responsible for ensuring that the legal conditions for awarding grants have been met. Grant regulations published Feb. 11, 1974, (40 CFR 35.900) establish the process that an applicant must go through to receive Federal grants.

The effectiveness with which EPA manages that process is the subject of this chapter. The assumption is that grantees will achieve cost-effectiveness, as defined broadly in the regulations, to the extent EPA and the States manage the process well. The Review Group has concluded that EPA has not managed the construction grant program as a nationally consistent system. Whereas the very basis of legislation since 1948 is that water pollution is a problem national in scope that can only be solved by a consistent national effort under Federal leadership, the construction grants program today is really 10 separate programs managed by EPA's 10 Regional Offices. While we support the principles of decentralization which permit Regional Offices maximum discretion to adapt the program to the particular local conditions, the variation we observed among Regions is far greater than that dictated by Regional differences.

Current Problems

The shortcomings in EPA's current method of managing the construction grants program revolve around two points -- inadequate manpower in the Regions and inadequate guidance from EPA Headquarters.

Manpower Constraints. Since inception of the program in 1956, the Federal Government has obligated $9.7 billion for the construction and expansion of more than 15,000 projects (Table II-1); their total cost will reach approximately $30 billion. In 1974 EPA obligated $7.6 billion with 500 program personnel (Table II-2); in 1968, when the program obligated $0.7 billion, it had 130 people. Faced with severe personnel shortages, the Regions have chosen to put priority on different steps.

Inadequate Guidance. Guidance from EPA Headquarters has not been adequate. Regulations and policy guidance have been delayed, and when they are available, they often cannot meet the complexities experienced in the field. Further, since policy flows from various Headquarters sources, guidance is sometimes viewed by the Regions as contradictory, and thus subject to varied interpretation.

The recommendations in this report reflect our view that:

- Personnel should be increased.
- Procedural guidance should be improved.
- At several key points in the process, face-to-face meetings between EPA personnel, the State, the grantee, and the grantee's consultant will yield substantial benefits in terms of better applications and other submittals, reduction of processing time, and improved facilities while minimizing the need for additional EPA manpower.
- The beginning of the process and the final operation and maintenance phase should be emphasized, primarily through the allocation of manpower resources.
- Performance monitoring should be stressed.

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TABLE II-1

CONSTRUCTION GRANTS FOR MUNICIPAL WASTE WATER TREATMENT WORKS
(1957-73)

Fiscal year	Authorization	Appropriations	Fiscal year obligations	Federal expenditures	Total cost
		(millions of dollars)			
1957	50	50	38	1	
1958	50	451	47	13	
1959	50	473	46	36	
1960	50	461	48	40	
1961	50	461	45	44	1,703
1962	80	80	64	47	
1963	90	90	92	53	
1964	100	90	80	66	
1965	100	90	84	70	
1966	150	151	116	81	
1967	150	150	131	84	470
1968	450	303	191	112	648
1969	700	714	301	135	817
1970	1,000	800	524	176	2,031
1971	1,250	1,000	1,152	478	3,335
1972	2,000	1,000	860	411	1,713
1973	5,000[a][b]	3,000[a][c]	1,989	664	5,169
1974	6,000[b]	3,000[c]	3,021	1,551	3,147
1975	7,000[b]	4,000[c]			
Total	24,100	15,971	9,243[d][e]	4,894	30,331

[a] Funds obligated in any fiscal year may include funds appropriated in prior years.
[b] Includes supplemental appropriations of $681,000 in 1958, $1,416,000 in 1959, $1,101,000 in 1960, and $645,300 in 1961.
[c] Contract authority (method of funding changed from authorized appropriation to contract authority by 1972 Act).
[d] Amount of contract authority released by Presidential action.
[e] Includes $2,976 million obligated under PL 92-500 and $1,245 million obligated under PL 93-207.

TABLE II-2

PERSONNEL IN CONSTRUCTION GRANTS PROGRAM

Fiscal year	Estimated federal personnel
1968	130
1969	130
1970	360
1971	430
1972	402
1973	453
1974	593

Pre-application Stage

EPA is most interested in three types of activities during the pre-application stage:

- *State priority lists.* Using Federal criteria the State ranks each project eligible to receive Federal construction grants in order of priority, and submits the resulting list to EPA for approval.
- *Pre-application conferences.* EPA and the States meet with prospective grantees to discuss the requirements of the program in general, and the Step 1 application in particular.

- *Consultant selection.* Each prospective grantee selects an architectural engineering (A/E) consultant to assist in, or take the lead in, planning, designing, and inspecting construction of eligible projects.

State Priority Lists. By awarding grants only to projects on a State priority list, EPA intends to ensure that the most needed facilities will be constructed with the funds available. Current guidance establishes that the lists are to be based on four required criteria and whatever additional criteria the States wish to impose. The required criteria are:

- Population affected.
- Severity of pollution problems.
- Need for the preservation of high-quality water.
- National priorities (as well as total funds available).

In some States, political considerations, such as the need to "spread" the money about the State, may influence development of the list to the detriment of water quality objectives.

Development of the FY '74 priority list was hindered by publication of confusing and sometimes conflicting regulations and guidance (201's, 106, and Title II). Because the new requirements entailed several innovations, many States had difficulty incorporating these innovations in existing programs. Most States have now adopted the criteria called for in the regulations; however, States with projects in the pipeline for several years, have given these projects priority for funding, whether or not they "objectively" merited the priority.

The potential delay has been reduced by allowing States to extend their FY-'74 lists to cover FY-'75 also. However, delay could be further reduced and quality improved by doing more to ensure that State priority lists can be approved and implemented immediately on the effective date of July 1.

We recommend that the States be required to submit a tentative priority list in January rather than in April, as is present practice. EPA Regional Offices would then have six months to work with the States to develop approvable priority lists. EPA should offer technical assistance, such as providing one or two staff people for a week-long session at the State agency. This would aid those States which have had serious problems applying EPA criteria to the priority lists.

A problem that concerned the Review Group was the "mix" of projects, by steps of development, in the State priority lists. The lists vary from mostly Step 1 projects to all Step 3. The development of a continuous, smooth flowing program could be hampered if a State has an over abundance of Step 3 projects on its priority list. Similarly, the funding of a great number of Step 1 projects this year could mean too many Step 3's in subsequent years for the funds available. To achieve cost effectiveness, in other words, EPA must approve priority lists with an adequate mix of Step 1, 2, and 3 projects. *Since there is no policy guidance covering the procedural problems of the mix of priority lists, we recommend that the Office of Water Program Operations develop such guidance.*

Pre-application Conferences. Current EPA policy calls for the Regions to conduct pre-application conferences for municipalities with projects on a State's priority list. Such conferences are usually limited to answering general procedural questions, rather than considering specific project-related requirements. The numbers of pre-application conferences varies considerably from Region to Region, but in most Regions few conferences have been held, due to manpower constraints.

The pre-application conference, which should be jointly conducted by EPA and the State, should continue to give a comprehensive overview of the grant program, including the importance of providing for proper operation and maintenance of the project. However, specific emphasis should be paid to the requirements of a Step 1 grant application (as well as other topics discussed in later chapters). *We recommend that these pre-application conferences be held universally, and that the Office of Water Program Operations prepare guidance for the Regions on how to conduct them.*

Consultant Selection. The selection of a qualified A/E consultant is probably the most important decision that a grantee makes. The consultant, who generally prepares the facilities plan, designs the project, and oversees project construction, probably influences the cost-effectiveness of the project more than anyone else. The cost-effectiveness implications of consultant selection are discussed in Chapter V.

Facilities Planning Stage (Step 1)

Three separate tasks formulated under provision of the 1972 Amendments are included in the facilities planning stage of a typical project:

- *Application processing.* The grantee prepares an application for a Step 1 grant and submits it via the State to the Regional Office, where it is reviewed for completeness and accuracy. Once the application is approved, EPA awards the Step 1 grant, which funds preparation of the facility plan.

- *Plan preparation.* The grantee's consultant/staff defines the scope and basic design parameters of each component of the facilities plan. The plan should ensure that the project will be cost-effective, with regard to both monetary and environmental/social aspects, and in compliance with applicable water quality standards and effluent limitations.

- *Plan review and approval.* The completed facilities plan is submitted via the State to the Regional Office for review. Unacceptable components are returned to the grantee for additional work until EPA approves the total plan.

The statutory basis for facilities planning is found in Sections 201(g), 208(a), and 212 of PL 92-500. The requirements for facilities planning are set forth in 40 CFR 35.917, which were revised and promulgated on Dec. 11, 1974. They are further explained in *Guidance for Facilities Planning*, published in January 1974. In some respects, facility planning, as defined in these documents, is similar to the preliminary engineering study that has traditionally been performed prior to the development of detailed plans and specifications (Step 2). However, adherence to current regulations and guidance would go significantly beyond these traditional efforts. For example:

- All feasible alternatives have rarely been examined; and if they have, EPA has not insisted on documentation of their consideration and early rejection.

- Economic comparison of alternatives has frequently been less exhaustive than is now required.

- Consideration of operation and maintenance aspects of treatment works has often been cursory.

- Consideration of the impact of the facility on, or with its against growth on the facility it has been largely overlooked.

- Environmental and social impacts have traditionally not been considered exhaustively except in Environmental Impact Statements, which were prepared separately.

- Operational improvement of existing facilities as an alternative to new construction has often been largely ignored.

There are three principal consequences of adhering to the letter of the *Guidance for Facilities Planning*. First, considerably more time is required for facilities planning than has traditionally been consumed in preliminary engineering. The most time-consuming elements of the facility planning process are environmental assessments, infiltration/inflow analyses, public participation, and the cost-effectiveness analysis of major alternatives. We estimate that the grantee would require from 6 months for small projects to 24 months for large projects to fully comply with the Guidance. This extra time could lead to grantee frustrations and accusations that EPA is delaying projects.

The second consequence is that considerably more EPA staff time will be required to adequately review plans of study and facilities plans. We estimate an average of 12 man-days per Step 1 project for these two tasks, as opposed to the one or two man-days which used to go into reviewing preliminary engineering reports. This estimate of 12 days assumes State review and certification of infiltration/inflow assessments. It also assumes that 50 percent of the facilities plans will not require Environmental Impact Statements and allows no time for preparation of statements on the remaining 50 percent of projects. To the extent that the more complex requirements lead to additional

communication between EPA and the grantee, the States will also experience increased workload.

The final consequence of the new approach to facilities planning is that Regional staffing patterns in most instances will have to be changed to complement existing construction engineering skills with individuals versed in planning disciplines. Moreover, since the work would be to review the products of consultants — usually of long standing — this change must also involve employing higher-graded professionals with experience.

Facilities planning, as currently defined, has only recently been required. Pursuant to 40 CFR 35.917, a full facility plan is not required for a Step 2 grant if "facility planning" started prior to May 1, 1974. In addition, we noted a wide variation in attitudes among the Regions concerning what is acceptable. Some Regions accept something slightly better than the traditional preliminary engineering report, plus an environmental assessment and an infiltration/inflow assessment. In other cases, a concerted attempt is being made to obtain facilities plans in full accordance with the *Guidance for Facilities Planning*.

Because of limited experience under the new guidelines, the potential benefits of "full-fledged" facilities planning have not yet been systematically documented. However, the potential has been demonstrated for cost savings of selected elements of facilities planning. Table II-1 summarizes the savings in construction costs ($31.1 million out of a total investment of $180 million) on 11 projects through the application of the type of cost-effectiveness analysis conducted in the review of preliminary engineering reports.

We recommend that the Regions stress adherence to Guidance for Facilities Planning. At this stage in project development, the Agency has its greatest opportunity to impact cost-effectiveness, and to ensure that facilities are constructed which meet water quality standards at the lowest monetary and non-monetary costs. In addition to this general recommendation, we are making specific recommendations regarding three aspects of facilities planning — multijurisdictional planning, conferences, and reimbursable planning.

In most urban areas, facilities planning, if done properly, will encompass several jurisdictions. Current regulations require the States to delineate the boundaries of "facility planning areas" in such cases. The States are frequently reluctant to delineate such areas, and EPA Regional Offices are cautious about requiring such delineations. Both realize that the institutional arrangements to pursue multijurisdictional planning and, more importantly, to implement multijurisdictional plans, are either not instituted or are imperfect. The tendency, then, is to delineate facilities planning areas lying within a single jurisdiction, except in the few cases where existing institutional arrangements permit ready delineation of larger areas. Delineating proper facilities planning areas holds high potential for achieving more effective and less costly areawide waste treatment and collection configurations. The consequences of forcing proper delineation of planning areas, however, are either (1) delays in perfecting the institutional arrangements necessary to implement the facilities plan prior to construction or (2) the real possibility that the facilities plan for the broader area will not be implemented.

Nonetheless, we recommend that Regions in concert with the States undertake a determined effort to delineate proper facilities planning areas.

Because of the complexity of facilities planning, and its newness to grantees, consulting engineers, and the States, EPA should make early contact with the grantee through a facility planning conference to describe and explain its requirements. During such a conference, EPA would discuss with State personnel and the grantee such items as the environmental and social issues to be examined, the scope of infiltration/inflow analysis, and other features of the requirements as they would specifically apply to the particular project. We make the following suggestions with regard to conferences:

- Hold conferences in the grantee's office so that the EPA personnel conducting the conference can acquaint themselves, first-hand, with the planning area, the existing facilities, and other pertinent information.

- Place a senior member of the facilities planning staff in charge of the conference.

TABLE II-6

PROJECT SAVINGS THROUGH COST EFFECTIVE ANALYSIS

Project Location	Description	Capital cost		O&M Annual Cost		Annualized Capital Cost		Selected Rating
		Submitted	After Analysis	Submitted	After Analysis	Submitted	After Analysis	
Danville, California	The submitted plan would include land on and off treatment plants serving 3 communities. The Region proposed a large SBR plant to serve the communities.	$ 7,000,000	$ 4,000,000	($ 80,000)	$ 117,000	$ 620,000	$ 460,000	50
Rural Livermore-Amador Planning Area	Both the submitted plan to expand existing facility and include tertiary treatment. The Regional Board plan to build a plant near to the city and have county construct an interceptor. The Region proposed expansion of the plant to include tertiary and phosphorus removal.	$ 10,750,000	$ 9,775,000	$ 50,000	$ 75,000	$ 950,000	$ 1,047,000	85
Palo Alto to Los Altos, California	Submitted plan proposed a new SBR plant and phased expansion of existing plant. A second plant (Palo Alto) would have proposed SBR plant with no expansion. Region proposed construction of an interceptor from existing plant to Palo Alto plant and expansion to include phosphorus removal.	$ 8,470,000	$ 11,921,000	$ 207,000	$ 230,000	$ 1,021,000	$ 1,147,000	115
East Bay Dischargers Authority, California	Submitted plan proposed 7 individual plants receiving no secondary treatment for five communities. Region proposed consolidation of four communities along the coast with the remaining 3 communities having a separate plant.	$ 9,000,000	$ 13,871,000	$ 175,000	$ 275,000	$ 1,000,000	$ 1,511,000	115
Palo Alto, California	Submitted plan proposed upgrading 5 of those plants to existing Bahia and Point Plant which would be expanded from primary to secondary treatment. Lifting of sewage was necessary on the Bahia and Point. The Region rejected proposal in favor of pumping the Bahia and Point to East Point plant and not lifting the wastewater.	$ 7,417,000	$ 10,671,000	$ 450,000	$ 760,000	$ 1,547,000	$ 2,167,000	115
Diamond Springs, California	Submitted plan proposed expansion SBR plant in the City of Diamond Springs. Region proposed creation from and improved sewer system to permit those residents and the Region. The City of Diamond Springs would continue using the Diamond Springs facilities.	$ 1,000,000	$ 1,000,000	$ 10,000	$ 10,000	$ 110,000	$ 110,000	30
Cache Creek Valley, California	Submitted plan proposed phased expansion of plant up to this and construction of interceptor to Cache Creek. Region approved plan to upgrade Cache Creek facility.	$ 900,000	$ 900,000	$ 10,000	$ 10,000	$ 100,000	$ 100,000	40
Tuscarora, Nevada	The submitted plan proposed enlarging the existing plant and construction of a new interceptor. Region proposed another re-pumping of the existing plant with treatment proposed at another plant.	$ 2,000,000	$ 1,700,000					30
Mount Vernon, Colorado	The submitted plan proposed enlarging of a lagoon. Region proposed pumping sewage to Steamboat Springs treatment plant.	$ 800,000	$ 700,000					30
Glendale, Colorado	The plan proposed enlarging the Glendale treatment plant. Region proposed connection to Denver interceptor which was close by. Glendale will now upgrade existing facilities.	$ 1,000,000	$ 800,000					30
Ajax, Colorado	The submitted plan proposed 2 coastal outfalls, 1 coastal outfall and 1 land outfall and a population projection of 100,000. Present population is 50,000. The Region approved a population projection of 140,000 consistent with a State projection for the area, thereby reducing the size of the system	$ 17,000,000	$ 12,000,000					30

1 Based on future requirements of capital cost of 7 percent and 20 year life and includes replacement equipment.

- Provide for active follow up, including subsequent visits, to larger, more complex projects.

Facilities planning conferences will require a significant change in the mode of operation of most Regions, and will require added manpower. We estimate that an average of 1.5 man-days will be required for each conference, including follow up conferences and related travel. For small or simple projects, a 1 day visit would probably be sufficient. For average, more complex projects, probably a 1 day visit at the beginning of the consultant's planning work and another about midway through this work would suffice. For very large and very complex projects, those involving SMSA's or major urban/industrial areas, three or four visits would probably be necessary.

We recommend that the Regions institute facilities planning conferences for all Step 1 projects.

A viable alternative to holding conferences on all Step 1 projects would be to hold conferences only on large complex projects. For other projects, EPA could provide the grantee and his consultant copies of applicable regulations, guidance, and other materials describing EPA requirements. There would be considerable value in holding 1 day conferences with small projects, at least over the next 3 years, so as to familiarize the consulting engineering community with what constitutes adequate facilities plans; however, tight staffing constraints may rule them out. Another alternative would be to hold 2 day seminars in each State with the second day devoted to meeting with individual municipalities to discuss specific problems.

At the present time, many projects are formally entering the construction grants program at the design or construction stage, instead of going through the full process described in the chapter. In some cases, the planning of such projects was begun before the 1972 Amendments became effective. In addition, some States (for example New York) require that work on Step 1 and Step 2 be completed before they will recommend that EPA fund a project.

Current regulations allow a municipality to be reimbursed for its facility planning effort after a Step 2 or 3 grant has been awarded, as long as certain conditions are met. EPA must review and approve the plan of study for facility planning for all projects initiated after Oct. 31, 1974, if the prospective grantee intends to seek reimbursement later in the project. In addition, for all projects initiated after June 30, 1975, States must reserve the estimated amount of these reimbursable costs from their allotment.

Current provisions for reimbursement can be expected to cause delays and inefficiencies. If a grantee prepares plans and specifications on a reimbursable basis, EPA does not first review his facility plan. Any deficiencies in his facility plan would be incorporated in his plans and specifications. The Regional Office would then have to request correction of all inputs before a Step 3 grant could be awarded. As this request would not be made until several months after a municipality has made significant facility planning decisions, making major changes would be expensive, time consuming, and possibly politically awkward.

We recommend that reimbursable facility planning for new projects be handled as if it were going through the normal Step 1 process. That is, the Agency should not only review and approve the plan of study, but also conduct a facilities planning conference and review and approve the facility plan. The only functions to be omitted or postponed would be the review of a formal Step 1 grant application and, of course, the award of a Step 1 grant.

Design Stage (Step 2)

The three major tasks which must be accomplished during the design stage are:

- *Processing of application.* For projects which have been planned under Step 1 agreements, the Step 2 grants are handled by amending the earlier agreement. Where no earlier agreement is involved, the prospective grantee, or generally his consultant, prepares an application for a Step 2 grant and submits it via the State to the Regional Office. Once the amended agreement or application is approved, EPA awards the Step 2 grant, which funds the development of detailed plans and specifications.

- *Preparation of plans and specifications.* The grantee's consultant prepares the engineering plans and specifications that translate the decisions made during the facilities

planning stage into efficient and effective treatment facilities.

- *Review and approval of design.* EPA reviews the plans and specifications to ensure that the proposed project will meet effluent limitations and water quality standards, and that it is not designed with excessive capacity. (Several States have been authorized to certify that this is the case.) In addition, the EPA review ensures that Federal administrative requirements, such as equal employment opportunity and prevailing wage rates, are provided.

The specific EPA activities discussed in this section are the predesign conference, review of plans and specifications, and user charge/industrial cost recovery requirements.

Predesign Conferences. Throughout this report, we have emphasized the desirability of conducting face-to-face conferences with the grantee and his consultant, not only to assist in complying with Federal regulations and guidelines, but also to ensure timely, cost-effective facilities.

Regional Offices currently provide predesign advice and assistance to the extent that staff time allows. This function should be institutionalized in the form of routine predesign conferences. The grantee and his consulting engineer would be invited to the Regional Office shortly after the Step 1 grant is awarded. They would meet with senior EPA construction engineers and operation and maintenance (O&M) specialists to discuss key design considerations. Items such as sewer overflows, by-passing untreated wastes during construction, and O&M considerations, including laboratory and process control equipment needed, might be discussed. In addition, the conferences would facilitate the exchange of ideas and promote improved relations. This meeting, together with follow-up discussions conducted by mail or telephone, would require perhaps one man-day for an average project.

We recommend that the Regions institute routine predesign conferences for all projects except certain smaller ones. In addition, the Office of Water Program Operations should update and reissue its design guidance package to conform to the requirements of the 1972 Amendments. *We further recommend that those States authorized to certify plans and specifications be encouraged to undertake, with EPA participation, a program of predesign conferences.*

Review of Plans and Specifications. EPA's review of project plans and specifications covers both technical and administrative aspects. The administrative review is not time consuming and is performed routinely by all Regions. The effort expended on the technical review, however, varies from one Region to another.

A technical review typically consists of examining the hydraulic and sanitary engineering features of the plans in determining the sizing of various components and other features which determine the sewage-carrying and treatment capacity of facilities. This review also includes an examination of O&M features, such as the adequacy of pumps, controls, measuring devices, and laboratory equipment. Essentially, the purpose of the review is to assure the operability and effectiveness of the proposed facilities, so that they will achieve the effluent limitations prescribed in the NPDES permit.

In our opinion, the Regions are generally doing an adequate job in these reviews of ensuring that effective facilities are being built. Frequently, the reviews uncover deficiencies that must be corrected before approval is given. However, in our opinion, the "cost" side of the cost-effectiveness goals is not receiving sufficient attention. *We recommend that the Regions devote additional attention to an analysis of the cost of the proposed facilities (i.e., value engineering).* The Office of Water Program Operations should develop guidance to support the effort in this area.

A majority of the States are performing the technical reviews described. Current policy allows the Regions to delegate the review of plans and specifications to the States and to accept State certification as the basis for EPA approval (EPA Order No. 1250.1). Presently, 15 States have been delegated responsibility for this review, and 35 to 40 States are expected to assume this responsibility before the end of 1975.

User Charge/Industrial Cost Recovery. User charges and industrial cost recovery systems (UC/ICR) are new requirements of PL 92-500. For the first time, legislation requires EPA to monitor local financial procedures required by Federal law after a facility has been completed.

Grantees are legally required to establish a system of fees (user charges) to assure that each recipient of waste treatment services within the service area will pay its proportionate share of the costs of operation and maintenance. The new requirements also call for the applicant to collect from each industrial user "that portion of the grant amount (i.e., project capital costs) allocable to the treatment of its waste".

To date, no O/M/R system has actually been implemented to the point of collecting charges. EPA Regional Offices have required from applicants a letter of intent stating that the municipality will comply with the O/M/R requirements by the time 80 percent of the construction is completed (required charges do not have to be collected until facilities are operable). However, as a new project progresses, significant delay could be caused by the applicant's inability to implement the system or EPA's inability to monitor it.

We recommend that EPA institute a comprehensive O/M/R program over the next two years. Under the program EPA would:

- Arrange predesign conferences with, and provide appropriate follow-up advice to, grantees to explain EPA requirements.

- Review industry letters of intent and grantee's commitment to, and schedule for developing, a O/M/R system. (Typically, the grantee develops his system after award of a Step 2 or 3 grant and during the construction period.) The system is required before awarding a Step 2 or Step 3 grant, and it includes developing appropriate grant conditions.

- Review progress of grantee's development of his system prior to 50 percent completion of Step 3 construction.

- Review and approve grantee's system prior to 80 percent completion of Step 3 construction.

- Receive and record grantee's notice of initiation of O/M/R implementation.

- Review the grantee's annual submissions of information on implementation, and process and deposit his payment in the Federal Government.

- Review and approve the grantee's periodic revisions of his approved system.

- Review and approve the grantee's expenditure of the 50 percent portion of the retained O/M/R funds placed in the sinking fund.

We are concerned that the Agency have sufficient manpower trained in municipal finance or in utility rate systems to provide both technical assistance and review.

Construction Stage (Step 3)

From the Agency's perspective, the construction stage has four major categories of activities:

- *Application process.* For projects which have been funded through Step 1 or Step 2 agreements, Step 3 grants are handled by amending the earlier agreements. Where no earlier agreement is involved, the prospective grantee or his consultant prepares an application for a Step 3 grant and submits it via the State to the Regional Office. Once the application is approved, EPA awards the Step 3 grant which funds the actual construction of the facilities.

- *Contractor selection.* The grantee advertises for competitive bids. The bids are evaluated by the grantee and, unless an exception is justified, the low bidder is selected. The successful bid is submitted via the State to the Regional Office, as is a summary tabulation of all other bids received. Once the selection is approved, the grantee is authorized to award construction contracts.

- *Project construction.* During project construction, EPA and the States conduct a variety of activities, including approving payment and change order requests; conducting on-site inspections and audits; and approving O/M/R systems and O&M manuals.

- *Final payment.* After construction is completed and the plant is in operation, a final inspection is made to ensure that the facility is meeting design specifications. Once it has been determined that all grant conditions and contract obligations have been met, the final grant payment is made.

EPA activities during the construction stage are concerned primarily with making sure that funds already obligated are used according to the approved plans and specifications. Although these activities can have an impact on the project's cost and effectiveness, they are primarily intended to protect the program's integrity (see Chapter V).

A critical element in achieving cost-effectiveness during construction is the resident inspector. His job is to ensure the quality of construction and full compliance with plans and specifications. He also is responsible for receiving and approving payment for quantities under unit-price contracts (e.g., tons of rock excavated) and for developing and/or approving monthly estimates of work completed under fixed-price contracts. Finally, he frequently is responsible for recommending approval of changes to approved plans and specifications (that is, change orders). To carry out this responsibility, the resident inspector must be diligent, honest, present on the job, and on the lookout for attempts by the contractors to shortcut on plans and specifications. Moreover, he must maintain adequate records of daily construction activities and progress, measured quantities, test results, and other information.

Without an "army" of inspectors on its own payroll, EPA could not possibly provide for this function; therefore, the Agency must rely on the performance of resident inspectors who are generally retained by either the consulting engineer or the grantee. In particular, EPA's interim inspection function should concentrate not on an inspection of construction but instead on an inspection of the resident inspectors to determine whether or not they are performing adequately.

To implement this approach, the Review Group believes there is a need for "preconstruction" conferences intended to acquaint the resident inspector with the level of performance required. The discussion would stress the importance of being on site, witnessing and critically inspecting certain construction activities—such as pipe laying and concrete pouring, maintaining daily logs and other records, properly measuring and recording unit-price quantities, and correctly performing required tests. Such a conference would be conducted shortly after construction begins with senior Regional staff members participating.

Currently the Regions perform few if any preconstruction conferences of this sort, primarily because of a lack of personnel. *We recommend that preconstruction conferences be institutionalized and uniformly carried out on all Step 1 projects.* We estimate that these conferences would require an average of 1.5 man-days per project, including travel.

Operation and Maintenance Stage

Once a treatment facility is in operation, the role of the Federal Government is sharply diminished. EPA and the States conduct inspections to ensure that the facilities are in compliance with discharge permits and to determine whether O&M practices are adequate. In addition, it is anticipated that periodic Federal audits will be required to determine whether O&M requirements are being met.

In order to meet the goals of PL 92-500, publicly owned treatment works must not only be planned, designed, and constructed properly, but they must also be *operated* and *maintained* properly. EPA's *Clean Water Report to Congress: 1974* states that, of the operating treatment plants inspected during the past year as part of the routine construction grant project follow-up, 30 percent of those plants with sufficient effluent data for analysis were *not* achieving the effluent quality criteria they were designed to meet. If EPA allows the present situation to continue, it can be assumed that several billions of dollars in construction grant money will be expended in a less than cost-effective manner.

On Nov. 16, 1974, EPA adopted an official Municipal Operations Strategy that states that the Agency's O&M activities must be an integral part of an overall program to assure that publicly owned treatment works achieve and maintain the effluent quality required by municipal permits issued under the NPDES. In the same sense, the construction grants, O&M, and municipal permit activities must reinforce and

complement one another. This message is repeated in the proposed "Supplementary Guidance on Municipal Permit Compliance", which was circulated for comment on June 18, 1974.

The Municipal Operations Strategy has not been effectively implemented. A June 1974 assessment of implementation progress, based upon recent visits of Headquarters personnel to the Regions, indicated the following:

- Seven of the 10 Regional Offices are doing a less-than-effective job of integrating O&M activities into the grant project review process.
- Five of the 10 Regional Offices are doing a less-than-effective job of establishing priorities for inspection efforts.
- Seven of the 10 Regional Offices have less-than-effective technical assistance programs.
- Four of the 10 Regional Offices have less-than-effective programs for coordinating with State efforts.
- Seven of the 10 Regional Offices do not effectively coordinate O&M programs with manpower development and training activities.

One reason for this inadequate performance is that most Regional Offices have not utilized budgeted O&M positions for O&M work. Full implementation of the Municipal Operations Strategy is also inhibited by the lack of agreement among the Regional Offices regarding the results which can be expected from an effective O&M program. For example, during our interviews, representatives of Regions II and V stated that proper O&M could assure plant reliability but could not alter the need for new capital construction. On the other hand, Regions VI, VII, and IX expressed the view that proper O&M could, indeed, postpone new construction.

We recommend that the Regions take several actions to improve the O&M stage of the construction grants program. Among the actions:

- Integrate grant-related O&M policies and activities into the grant project review process include the following:
  - emphasize O&M aspects of proposed projects at the predesign stage,
  - review plans and specifications from an O&M perspective,
  - identify plant staffing requirements and potential training needs,
  - review O&M manuals.
- Ensure that O&M considerations and interim performance criteria are adequately integrated into municipal permits.
- Realign priorities for inspection efforts to concentrate on intensive initial and follow-up inspections on critical plants in priority areas, including both new and existing treatment facilities.
- In connection with State agencies, establish a technical assistance capability for improving existing plant operations. This capability encompasses extended analysis of plants to correct major operational problems and improve operational efficiencies. It must also be closely interrelated to training needs to assure continually improved operation.

We recommend that EPA Headquarters develop adequate program guidance for an aggressive nationwide municipal operations and maintenance program. Headquarters should take the lead in developing and implementing, within Regional Offices, the following program activities:

- A public information program to promote better O&M municipal treatment facilities. This program must reach that part of the public that can best influence and improve O&M.
- Full integration of training efforts with operational requirements.
- Improve data handling and assessment capabilities to provide an improved base for program support and direction, while also satisfying the requirements of Section 210 of the Act.

One proposal the Review Group considered is requiring a service/training contract for each

construction grant project. The objective of such a contract would be to assure that the personnel of treatment plants constructed with Federal funds be trained to effectively operate and maintain these plants at the beginning of their service life. This proposal has enough merit that the Agency should seriously consider its adoption. A 6-month service/training contract would probably cost between $15,000 and $100,000 for an average treatment plant.

III. OBLIGATIONS

Concern has been and is frequently expressed over EPA's history in obligating the 1974 through 1978 funds (contract authority) authorized by PL 92-500. Of the $18 billion authorized, $9 billion have been allotted to the States, but only $3 billion were obligated through July 1, 1974. Very simply, the question posed is: Why has not all or nearly all of the $9 billion been obligated, particularly in view of the most recent Needs Survey? There are two aspects to the response to this question. One embraces an assessment of the causes of the obligation performance since passage of PL 92-500 and a prediction of future performance. The second aspect embodies an analysis of the impact of current administrative practices on the obligation of funds. In addition, a third element merits discussion: the relationship of obligations to actual expenditures of funds, the employment of workers, and the creation of economic activity on the construction site. Much of the concern over obligations is really concern about creating local employment and economic activity.

Past and Predicted Performance

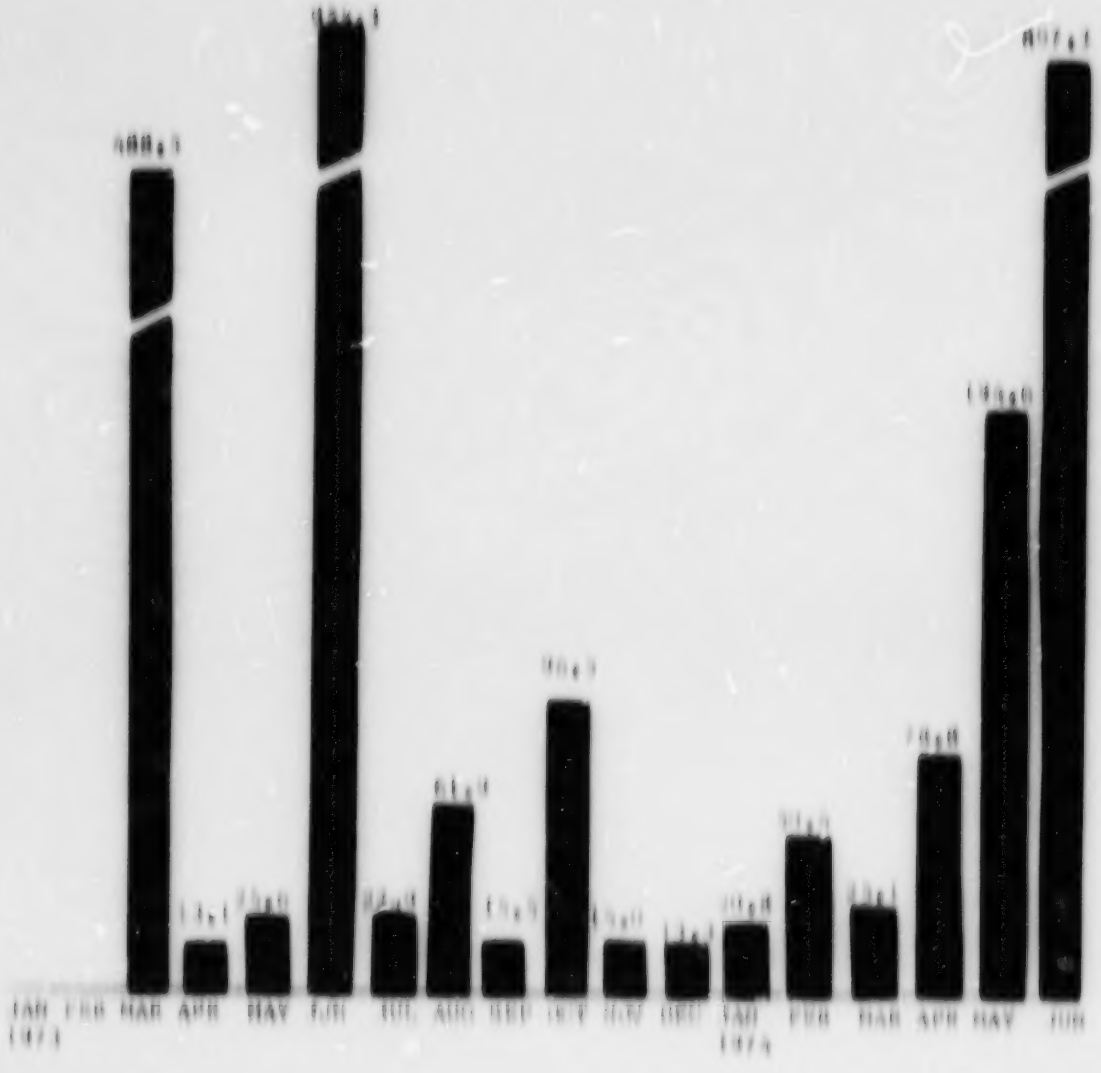
Since passage of PL 92-500, $3.5 billion of the $3 billion obligated were obligated in four separate months: March and June of 1973 and May and June of 1974 (Figure III-1). Two factors were responsible. The basic factor behind the low overall level of obligations and the virtual inactivity for 15 of the 19 months was the absence of final Title II regulations. In the first three months, EPA prohibited obligations of PL 92-500 funds pending issuance of interim regulations. In the next 13 months, although interim regulations were in force under which obligations could be made, grantees and the States generally understood that final regulations were imminent. Most prospective grantees and States elected to hold back on development of applications, infiltration/inflow analyses, environmental assessments, and other documents until they could be sure of what the final rules would be. Unfortunately, this waiting kept being extended, with the expectation that the final regulations would be issued in the "next month." Finally, in February 1974, the final regulations were issued, resulting in renewed activity on the part of grantees and the States and increased obligations in May and June 1974.

The second factor which influenced past obligations and produced the two obligation peaks in March and June 1973 was two statutory provisions of PL 92-500. In the case of March 1973, it was the Section 204(b)(1) requirement that the grantee adopt user charge and industrial cost recovery systems on all projects awarded after March 1, 1973. In the case of June 1973 it was the Section 201(g)(1) requirement that the grantee perform infiltration/inflow analyses on all grants awarded after July 1, 1973. In both situations, many grantees were attempting to beat these requirements.

Four lesser causes also contributed: (1) slowness and difficulties in development and approval of priority criteria and annual priority lists, (2) the necessity for some projects which were proceeding under the previous requirements of PL 84-660 to be redeveloped according to the new requirements of PL 92-500, (3) with respect to new projects, the necessity of accommodating the more complex and time-consuming requirements of PL 92-500, including infiltration/inflow analyses, and (4) the basic change which resulted in incurring a project's principal obligation at the Step 3 stage rather than at the start of the project.

We believe that the basic causes of the past performance were eliminated with (1) issuance and subsequent understanding and acceptance of the Title II regulations, (2) improvement of criteria and development of annual priority lists, and (3) processing of most of the "in-stream" projects which had to be redeveloped. This

FIGURE III - 1
MONTHLY RATE OF OBLIGATIONS
(billion dollars)



belief is substantiated by the reasonably large obligations of May and June 1974 and by the sustained levels of monthly obligations in the first three months of FY 1975 ($83, 156, and 180 million, respectively).

Our estimates of obligations and year-end unobligated balances for 1975 and 1976, assuming allotments of $4 billion in January of both 1975 and 1976, are presented in Table III-1. Although obligations are expected to increase substantially over those of 1973 and 1974, we still expect substantial unobligated balances at the end of each year. The reasons are threefold. First, the discontinuity created by enactment of

PL 92-500, and the delay in developing and issuing the Title II regulations, deferred development of many new projects. It will, therefore, require several years to reach a steady state insofar as obligations are concerned, because of the 12- to 30-month lag between the start of a typical project at Step 1 and its entry into the Step 3 (construction) phase where the large obligations are incurred.

Secondly, the restructuring of the program to provide for separate Step 1, 2, and 3 grants deliberately shifts major obligations from the front-end of projects, where they were incurred under PL 84-660, to the Step 3 stage of projects. Without this restructuring, the small amount of Step 1 and Step 2 obligations reflected in the projections of Table III-1 would be significantly larger because they would reflect Step 3 obligations. In other words, the projected obligations reported above understate the real level of activity estimated for 1975 and 1976. This can be better seen in the projected number of active PL 92-500 projects in these two years as compared to 1974:

1974	2,400
1975	5,200
1976	8,300

This doubling and tripling of active projects are not reflected in obligation projections because of the inherent deferral of large obligations until about one third through the life of a typical project. If EPA wanted to reflect a more favorable obligation picture than painted by Figure III-1, it could change the regulations to incur Step 3 and Step 2 obligations at Step 1. This would not change the real level of activity or progress of projects, nor would it hasten actual expenditures.

Finally, the rate of obligations depicted in Figure III-1 is based on the number of projects that the "system" - the grantees, consultants, and others (bonding, land and right-of-way acquisition, and legal services) can generate and develop under current requirements and regulations. Although we have no means for measuring and evaluating these capabilities much less knowledge of how they can be encouraged toward greater activity, interviews with Regional and State people suggest that the projected obligations match the capacity of grantees and their consultants.

TABLE III-1

PROJECTED OBLIGATIONS
($ billions)

Year	Quarter	Available Funds	Obligations	Unobligated Balance
1975	1st	6.0[1]	0.4	
	2nd		0.6	
	3rd	4.0	0.7	
	4th		1.5	
	Total	10.0	3.2	6.8
1976	1st	6.8[2]	1.4	
	2nd		1.7	
	3rd	4.0	1.9	
	4th		1.8	
		10.8	6.8	4.0

[1] Carryover of unobligated 1974 and 1975 funds into 1975.
[2] Assumed allotment of reserved 1975 $5 funds on or about January 1, 1976.
[3] Carryover of unobligated balance into 1976.
[4] Assumed allotment of reserved 1976 $5 funds on or about January 1, 1976.

Impact of Administrative Practices and Program Requirements

To what extent do current administrative practices and requirements of the program impede the rate of obligations? This question really has two parts. To what extent do these practices and requirements lengthen the time for the grantee to develop a project and for the States and EPA to review and process it. Both cases further defer time for large Step 3 obligations. Each project must go through a preliminary phase where planning and engineering design, acquisition of land and rights-of-way, local shares financing (usually bonding) and other steps are accomplished. This phase usually requires 6 to 18 months, depending on the size and complexity of the project. Secondly, design drawings and specifications typically require from 6 to 12 months. Consequently, basic requirements and practices dictate a 12- to 30-month time period between project concept and start of construction.

PL 92-500 adds to the grantee's workload and can, to some extent, add to the time involved. This is particularly true in the preliminary stages where PL 92-500 requires an infiltration/inflow analysis, an environmental assessment, and a

more sophisticated endeavor in preliminary and cost-effectiveness analysis steps not typically performed in the past. It is difficult to estimate how much time these requirements add because of limited experience with PL 92-500 projects. Indications are that they add from 2 to 12 months to project development, depending especially on the sophistication of the infiltration/inflow analyses required and on the public controversy that develops over environmental impacts.

Current administrative practices and program requirements obviously add to the time for review and processing. The time element is influenced by several factors, including:

- The complexity of the program requirements themselves.
- The ability of grantees and their consultants to comply with requirements so that States and EPA do not have to return many submissions for reworking.
- The degree to which EPA has delegated review functions to the States.
- The adequacy of State and EPA staffing.

The requirements of PL 92-500 and the National Environmental Policy Act are reasonably complex and require time-consuming review of submissions by States and EPA. This is particularly true in the Step 1 stage where review of facilities plans and their associated pieces infiltration/inflow analysis and environmental assessments are required. Also the preparation of environmental impact statements can require substantial time. Given adequate staffing, reasonably efficient administrative procedures, and reasonably adequate submissions, States and EPA should require about three to four months for review and approval, exclusive of time required to write environmental impact statements. Where environmental impact statements are required, 9 to 12 months are added to the time clearly. If the new requirements of PL 92-500, those of NEPA, and those imposed by other sources (labor and civil rights requirements, intergrantee review requirements and others) were eliminated to virtually "no strings attached" process, the review time could be reduced to perhaps two months. Accordingly, current administrative practices and program requirements add one to two months to obligations and 4 to 14 months where environmental impact statements must be prepared. This time results from statutory requirements and therefore could only be reduced by statutory changes. We do not recommend removal or lessening of these requirements because they are critical to development of cost-effective, environmentally sound facilities. Moreover, for a majority of the projects, the time savings would be small in the lower part of the ranges given and, therefore, would not significantly increase obligation rates.

Currently, grantees and their consultants do not fully comply with program requirements. The result is that States and EPA must ask that facilities plans and other documents be reworked. This can add weeks and even months to project processing. Problems of this type will be alleviated as grantees and consultants become better acquainted with the Title II regulations and more adept at producing the types of documents required. To promote this, we have recommended in this report greater direct involvement with the grantees through preapplication, facilities planning, and predesign conferences.

In many cases, the States are handling and reviewing submissions before they get to EPA for review. In some instances this involves duplicative reviews. In others, it involves double handling of documents and extra mailing time. In all cases, some time could be saved if EPA and the States were not both involved in the administrative process. Delegation of functions to the States would obviously reduce this unnecessary delay. However, for the reduction to be significant, virtually all functions would have to be delegated to a large proportion of States. Moreover, delegation of functions to the States would not reduce the basic processing time required. It merely transfers the processing from one agency to another, without necessarily saving time.

Finally, the adequacy of State and EPA staffing obviously influences processing times and, therefore, the rates at which obligations are made. In cases where the incoming submissions exceed the processing capacity, review and approval can be deferred, and the actions can be less thorough. Our general observation is that deferral usually takes precedence until external and/or internal pressure reduces the thoroughness of review and processing. We generally believe that inadequate staffing will always

result in some degree of processing lag and, therefore, obligation lag.

In summary, current administrative practices and program requirements delay by several months the time between a Step 1 application and the time when the large obligations of Step 1 are incurred. The largest part of the delay is mandated by law and, we believe, is necessary to promote development of cost-effective, environmentally sound facilities. In essence, the Agency is sacrificing, to some degree, optimizing obligations in order to fully meet legal requirements and achieve its cost-effectiveness and environmental integrity goals. We believe this policy should be continued.

Relationships of Obligations to Expenditures, Employment, and Economic Activity

We suspect that many of those expressing concern about obligations are really worried about local economic activity and employment. Consequently, it is important to understand the relationship between obligations and these other factors. In the projected obligations in Table III-1, approximately 90 percent constitute Step 1 obligations, and the remainder Step 1 and 2 obligations. Step 1 and 2 obligations create reasonably immediate employment for professional consultants, principally architectural/engineering consultants, but also others who provide legal, bonding, and land acquisition services. These obligations will not create construction employment, equipment purchases, and associated economic activity.

Step 3 obligations will create near-term construction employment and economic activity. A typical and reasonable time lag between these obligations and the start of construction activity (when the construction contractor moves on site) is about 8 months. Advertising for construction bids, evaluating bids, letting contracts, and actually moving on site consume this time. Once started, the construction employment and economic activity are ordinarily spread over a 1- to 3-year construction period. Accordingly, the economic activity that derives from Step 3 obligations is delayed in starting and spread over an extended period.

If the concern over obligations is really an interest in construction employment and economic activity, it should be focussed, first of all, on speeding up the time when Step 3 obligations are made and, secondly, on speeding up the start and progress of construction. The first action is discussed in the preceding sections of this chapter. The second action, basically outside of EPA's influence and authority, is determined by:

- How fast the grantee can complete the bidding/contracting process and concurrently the bond selling and land/right-of-way acquisition processes.
- The speed with which the contractor can move on site which is, in turn, influenced by how much business he has and how soon he can expect deliveries of major equipment and materials.
- The rate at which the contractor chooses to carry out construction which is, in turn, influenced by the labor market, equipment and material deliveries, as well as the amount of business he has.

Currently, unanticipated delays are being experienced in start of construction and in construction progress. For example, about $1 bil million of the $1.3 billion obligated in March through June 1974 is not yet under construction. Although we have not been able to pinpoint the exact reason, it generally appears to be the result of delays in delivery of certain types of equipment and materials and other factors associated with the prevailing national economic problems; this may dissipate by the time the report is published.

In summary, obligations are an approximate but not a precise measure of impending expenditures, employment, and economic activity on the construction site. Their principal shortcomings are: (1) they measure future but not immediate activity, and (2) they do not guarantee near-future activity. Consequently, optimizing obligations would achieve only part of the end results usually desired by those concerned with obligation rates.

IV. ENVIRONMENTAL INTEGRITY

One of the major goals of the Construction Grants Program is to plan and construct municipal waste water treatment facilities in such a way as to enhance the environment. Such an objective is not only appropriate for the Environmental Protection Agency, but is implicit in the purpose of the program and is explicitly required by law.

Section 102(2)(C) of NEPA requires that each Federal agency prepare and circulate for comment an Environmental Impact Statement on every major Federal action resulting in some significant impact on the human environment. The requirement apparently exists whether the significant impact is adverse or beneficial, and is designed to assure that environmental factors are explicitly included in Federal decision making processes and that private and other public interests are given due consideration.

There are a number of points in the process of cleaning up the Nation's water where environmental factors are brought to bear. Section 303 of the Federal Water Pollution Control Act Amendments of 1972 provides for establishment of water quality standards and a State continuing planning process to achieve these standards. Many environmental issues in addition to water quality are factored into the examination and selection of alternatives. Section 208 of the Act calls for development of metropolitan areawide waste treatment management plans. Again, a variety of environmental issues are included in the determination of the need, the general nature, and location of municipal waste water treatment facilities. The environmental analyses in 208 areawide planning are then reviewed and supplemented in facilities planning when more details concerning the treatment system are known. At the present time, however, few 208 plans have been undertaken, and, indeed, few facilities are being proposed in areas with 208 planning. In the absence of 208 plans in the vast majority of instances, therefore, most environmental planning should be included under the facilities planning program.

This chapter will therefore focus on facilities planning in its examination of the performance of the Construction Grants Program in meeting its stated environmental goal and in complying with legal requirements. The discussion begins with a review of the current environmental evaluation process and the problems associated with it. A strategy is then outlined for eliminating these problems and building a program to assure that environmental factors are meaningfully considered in project development.

The Current Process

General guidance in the area of environmental impacts is contained in the interim regulations, *Preparation of Environmental Impact Statements*, published in January 1973. Although these regulations are currently being revised, the requirements remain essentially the same. In the more specific case of municipal waste water treatment works, two publications provide primary policy and procedural guidance: *Title II Regulations* (February 11, 1974) and *Guidance for Facilities Planning* (January, 1974).

The process by which environmental effects of a typical project are factored into the decision-making system starts when the applicant submits a facilities plan to the Agency. The plan includes discussion of possible environmental effects (primary and secondary) of the proposed project and the alternatives (structural and nonstructural) that were considered during project development. The Agency then independently reviews the adequacy of the environmental evaluation included in the facilities plan to determine whether the proposed project is likely to result in some significant impact on the environment. If EPA determines that there will

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to no impact, it files a *negative declaration* supported by the facilities plan and an *environmental impact appraisal* describing the work and findings of EPA's review. The engineer responsible for the project usually conducts the environmental review and prepares the environmental impact appraisal, although frequently his recommendation must be concurred in by an environmental impact coordinator. The regional Administrator or his designee makes the final decision. If EPA determines that there will be an impact, it prepares and distributes a *letter of intent* notifying the public that it will prepare an *Environmental Impact Statement* (EIS). A public hearing is then held to discuss the environmental aspects of the proposed project. EPA prepares the EIS and circulates it as a draft to all relevant Federal, State, and local government agencies, as well as any interested groups and private citizens. These parties are allowed 30 days for review and written comments. An additional 15 days may be requested. Based on the comments, the Agency revises the draft and files the final EIS with the Council on Environmental Quality (CEQ). The Agency is then required to wait 90 days before taking any action on the project. Regions report that it often requires 1 man-year of staff effort to prepare an EIS.

Environmental evaluation is supposed to occur at the earliest possible point in EPA's processing of each project. Because applications are now coming in for projects at Steps 1, 2, and 3, this procedure is being applied at all stages. Once a project has been taken through the process, it does not need a new environmental evaluation at a later step unless considerable time has elapsed between steps or significant changes have been made in the proposed project. On projects coming in for the first time at the Step 2 and 3 level, the environmental evaluations are really justifications of decisions made some time ago, and changes are difficult to make. By 1978, all new projects should be entering at the Step 1 level, and the NEPA process will then be uniformly conducted at the facilities planning stage.

Problems with the Current Process

In examining the environmental evaluation process, the Review Group identified six major problems.

Too few EIS's Are Being Produced. Through June 30, 1974, EPA filed EIS's in either draft or final form on 68 construction grants projects. In addition, a number of statements are currently being prepared by the Regional Offices. While the definition of an "acceptable" number is a matter of debate, many within the Agency, CEQ, and Congress agree that the number produced to date is "insufficient."

Content and Quality of EIS's. Preparing an EIS involves delving deeply into the background of the project, analyzing the possible environmental effects on air, wildlife, plant life, quality and quantity of water in nearby communities, social disruptions, and growth. Many of these effects are difficult to predict, but they must all be discussed. The resulting documents are voluminous but all too often fail to deal adequately with the more basic issues involved — for example, growth potential, plant siting, or method of sludge disposal. Nevertheless, the EIS's written to date have been valuable to the Agency.

During the course of this study, the Review Group surveyed the environmental impact staff in each Region. One of the questions asked was whether the EIS's prepared had fostered change in the proposed project. A major change was defined as a change in plant site, method of effluent or sludge disposal, plant capacity, etc.; a minor change was defined as of lesser importance, such as a rerouting of an interceptor or extending an effluent disposal pipe.)

Of the 38 projects where some change was possible (for example, where the project in the judgement of the Region was not "locked in concrete"), 18 had major changes made as a result of the EIS, 9 had minor changes, and 11 had no change. It must be remembered that it was not the EIS itself that made these changes possible; it was the research and analysis done in preparing the EIS that showed these changes to be possible and indeed preferred.

Quality of Other Environmental Evaluations. Many Regional staff interviewed were eager to point out that while the Agency is not producing many EIS's, the overall evaluation process is still meeting the substantive requirements of NEPA in that most of the environmentally harmful aspects of a proposed project are being removed during its development. Consequently, by the time the project is approved, EPA can honestly file a negative declaration. Further,

many assert that most of the information that would be included in an EIS has already been included in the project's assessment and appraisal, which are available to the public.

Unfortunately, this optimism was not borne out by a special study made in August 1974 of the supporting documentation for 43 negative declarations filed by nine Regional offices. A special six-member group from Water Program Operations, Office of Federal Activities, Planning and Management, and Region III selected the projects on the basis of size (most were $2 million or more) and date of filing (only negative declarations filed within the past 6 months were used). Each project was evaluated for its discussion of the:

- Impact of the proposed action on the environment.
- Structural alternatives considered.
- Nonstructural alternatives considered.
- Possible growth implications of the proposed project.
- Public involvement in project development.

No project was found to have consistently good documentation. Some of the 43 negative declarations could be justified on the basis of the documentation alone, although it is possible that these decisions could be justified on the basis of material in documents other than those available to the group.

The environmental effects of the proposed action generally received the most complete treatment. Next best was the comparison of structural alternatives. Most projects were very deficient in the analysis of nonstructural alternatives and secondary effects. If growth was considered at all, the appraisal simply accepted the assertions of the applicant. The extent of public involvement varied. Some documents were completely silent on the point, while others included transcripts of public hearings, copies of letters received from the public, etc. (For other details of the evaluation, see Appendix A.)

We believe that there are two underlying reasons behind the poor quality of these environmental evaluations. The first has to do with the consultants employed by the applicants. Every Region has reported that the quality of the evaluation is directly related to the environmental capability of the consultant. A sanitary engineering firm with extensive experience in designing treatment facilities may not yet have developed a capability to carefully analyze environmental effects.

The second point has to do with the amount of pressure being brought to bear on the applicant and his consultant to do a good job of environmental evaluation. One Regional official reported that he has been required to ask applicants for new or additional information based on changing program requirements so often that he is embarrassed to ask for reworkings of environmental evaluations. Others have reported that highest priority is considered to be timely obligation of funds, and so any redrafts of environmental evaluations requiring additional time are not permitted.

Program Delays. A complaint often raised concerning the NEPA procedures is program delays. Headquarters and the Regions often fear environmental evaluations because they "cause delays in project awards". These people point to the large amounts of staff effort required to prepare an EIS, and to the 60 (or 75) day mandatory waiting time. They cite specific instances where large, complex projects have been held up in litigation based on failure to comply with NEPA. While NEPA procedures may result in delays, proper consideration of environmental factors during the facilities planning stage can reduce delays to a minimum.

Implementation Guidance. The interim regulations implementing NEPA are being revised. They were published in the *Federal Register* as a notice of proposed rule-making in July 1974, and are expected to be promulgated shortly. In addition, a *Manual for Preparation of Environmental Impact Statements for Wastewater Treatment Works, Facilities Plans and 208 Areawide Waste Treatment Management Plans* was issued in July. This manual is designed to tell a person writing a statement what should be included and how to approach each item.

However, we feel that guidance is still missing in three important areas. The first involves guidance to grantees. While considerable material has been developed for use by the applicant (Sections 201 and 208 guidelines, for instance), supplemental guidance is needed. The grantee needs to know why he must concern himself with environmental factors, when he should conduct these reviews, and how he should do it. He needs to know what kind of consultant to

back for and that he may hire special consultants for the environmental review. Such information could be included in a simple document drawing heavily from existing materials.

The next area concerns the development of quality criteria. Regional Offices have a need and an expressed desire to receive Headquarters guidance on how to judge the environmental acceptability of a facilities plan or an Agency appraisal. Examples of good and poor facilities plans and appraisals should be circulated to the Regions. Each example should be annotated to make clear its good and bad points. This same document should explain that an EIS does not have to be huge to be good. As long as the major issues are addressed, an EIS does not have to include semirelevant data on fish counts or soil characteristics. A good EIS that openly discusses the issues according to CEQ was prepared by the National Oceanic and Atmospheric Administration and entitled *Proposed Estuarine Sanctuary Grant Award for South Slough, Coos Bay, Oregon*. The draft contained 10 single-spaced pages plus appendices; the final version contains 31 single-spaced pages, plus appendices.

The last need for guidance is in the area of environmental methodologies. Is there a "better way" to predict the future growth of an area, particularly that induced by the construction of treatment works? What are the possible effects of construction noise on local wildlife? What is the potential success of a local campaign to reduce waste water flows? Regional offices, grantees, and their consultants would all benefit from the development of methodologies in such areas.

Unproductive Public Hearings. Each construction grant project must have a public hearing, and one with an EIS must have a public hearing on that alone. However, very often only a handful of private citizens actually appear at the hearing. This is frustrating for the grantee or the Agency staff who set up the hearing, and has led some to conclude that public hearings are a waste of time and effort.

These problems all pertain to the way the system works now. The system works this way because directives from Headquarters have been strong on the program obligations area and weak on suggesting ways to conduct good environmental evaluation. It also works this way because "we have always done it this way." However, many would argue that the recent issuance of new guidance materials will change the environmental evaluation system. In part, these persons refer to the new manual for preparing impact statements, but they are also placing their trust in the *Guidance for Facilities Planning*. This document describes the process for developing municipal facility plans, including how environmental factors should be integrated into the process. While engineers assess the technical and economic costs and benefits associated with various alternatives for each structural and nonstructural component of the treatment system, they should also include the environmental and social costs and benefits. If they do, the resulting proposal would have weighted all considerations against one another, and the best "all around" project would be selected.

If EPA stresses integration of environmental planning with technical planning rather than the disjointed approach now used, it is much more likely to receive good environmental evaluation. EPA staff will have much less work to do in preparing an EIS or even in deciding if one is not needed. But EPA must not assume that the new guidance will automatically be employed — it must make the guidance work.

Operating Issues

The Review Group has identified five operating issues of major importance to achievement of the program's environmental goal.

Timely and Effective Implementation of Facilities Planning Guidance. The new *Guidance for Facilities Planning* has the potential to resolve many of the problems described in the previous section. It applies only to projects for which facilities planning was to begin after May 1, 1974 so it will be some time before the effectiveness of the guidance can be assessed.

In the meantime, however, Agency personnel should become actively involved in the facilities planning being done by applicants.

Active involvement means that the facilities planning conferences recommended in Chapter II should stress environmental evaluations. The applicant should be told how the system works, including the expectations the Agency has in terms of environmental evaluations. Questions should be answered and the applicant encouraged to contact the Agency if new questions arise.

Such an active involvement is recommended because it would:

- Ensure proper implementation of guidance.
- Promote thorough environmental analyses by the applicant.
- Promote integration of environmental planning and traditional facilities planning.
- Encourage resolution of environmental problems and controversies *during* rather than *after* the planning effort, thus minimizing program delays.
- Minimize program delays since most of work would be done during facilities planning.

Advisability of Depending on Grantee for Environmental Evaluations. Projects requiring an EIS raise the question of how heavily EPA can rely on the grantee in preparing the draft EIS. If a grantee submits a "good" environmental evaluation as a part of the facilities plan, the Agency could use that plan as the basis for the draft, making only minor modifications and additions to the grantee's submittal. This obviously minimizes the staff effort the Agency must devote to the preparation of an EIS.

While this is an attractive idea, there is a legal question as to its acceptability. Several other Federal agencies have been sued on the grounds that their grantees prepared the draft impact statements, thereby violating the NEPA requirement that the Agency conduct an independent review of the grantee's proposal in order to make its own findings of the project's potential environmental impact. Court decisions have been mixed. In some cases, such as *Citizens Council Planning Board vs. Federal Power Commission*, the court ruled that the FPC was negligent in delegating preparation of the EIS to the applicant. In other cases, however, such as *Life of the Land vs. Brinegar*, the court ruled that the Federal Aviation Administration had complied with NEPA through active participation in and review of the statement even though it had been prepared by the applicant's consultant.

Recognizing this judicial disagreement, CEQ has taken the position that an Agency is justified in delegating most of the responsibility for preparation of the draft impact statement in cases where the program applicant is a State or local government entity, rather than a private applicant. CEQ is careful to point out, however, that active Agency participation is still required and that the Agency must review and adopt the grantee's submittal as its own.

With these issues in mind the Agency needs to make a decision as to how heavily it will depend on grantees in the environmental area. Agency policy should be explicit in permitting Regional Office staff members responsible for a given project to use the grantee's submitted facilities plan as the basis for the Agency's draft EIS. Minor changes and additions could be made, but the Agency can require that the plan include all the information the Agency needs for the draft EIS. In addition to the environmental evaluation included in the facilities plan, perhaps an introduction or background section and a brief summary would be prepared by the Agency, describing EPA participation in the planning process, and making it clear that EPA has carefully considered the environmental impacts of the proposed project and believes that the environmental benefits will far outweigh its potential environmental costs.

Such a system will:

- Assure that good environmental analysis is done by the grantee.
- Greatly reduce the EPA staff effort required in preparing an EIS.
- Minimize program delays.

Advisability of Involving EPA in Selection of Environmental Consultants. Since the environmental analysis of a given project depends to large measure on the environmental capability of the grantee's consultant, it would be to EPA's advantage to assure in some way that all consultants hired by the grantees can and will perform good analyses. There are a range of tools that the Agency could employ to influence the applicant's choice of a consultant. EPA could set up a list of consulting firms deemed unacceptable. This would also require the establishment of an elaborate appeals procedure. Unofficially, EPA could try to discourage grantees from hiring a consultant with whom the Agency has had poor experience. EPA could maintain a list of competent environmental consultants in each Region and make the list available to grantees who seek advice. EPA could publish information on the kinds of capabilities a consultant should have in order to do good environmental analyses. Also, EPA could en-

courage applicants to hire a separate environmental consultant to work in close coordination with the sanitary engineering firm. Many Regions say that better analyses result from a separate environmental consultant, although many grantees do not realize this is an eligible cost.

Since EPA should not specify which consultant an applicant should hire, but merely to encourage the hiring of any consultant who can produce a good product, a posture of informal guidance is recommended.

Advisability of Establishing Threshold Criteria for Deciding When to Prepare An EIS. The criticism that the Agency is not producing "enough" EIS's could be answered by establishing a series of threshold criteria. Although NEPA and the EPA proposed regulations provide that an EIS be prepared whenever a project is expected to have a significant impact on the environment, the vast majority of projects have received negative declarations. According to a telephone survey, seven Regional Offices prepare an EIS only when there is significant public controversy.

This disparity of operating procedures among Regions and the gap between official Agency policy and actual practice can be attributed to the very flexible language in the EPA proposed regulations, which simply say that an EIS should be written when a project is expected to result in some "significant impact on the environment." The proposed regulations, which were published in the *Federal Register* in July, attempt to be more specific on the subject of when to prepare an EIS, but the net effect is likely to be modest. Of the 11 environmentally based criteria now given, six are still subjective, using such terms as "significant change."

Such a lack of specificity could be eliminated by creating a series of objective, environmentally based threshold criteria that would trigger preparation of an EIS.

The question of establishing such criteria, however, should carefully be considered. It would be a serious error to develop criteria requiring so many EIS's that Agency staff couldn't possibly do them all.

To avoid such overload, it may be possible to develop two procedures. "New" projects — those for which facilities planning began after May 1, 1974 — would be subject to threshold criteria. If the facilities planning guidance is properly implemented, EIS preparation should not place a large burden on Agency staff. For projects already "in the pipeline," where there is no opportunity to guide the course of project planning, a different set of rules would apply. Each Regional Administrator would set a target of EIS's to be produced on these projects. This target would be in the range of 5 percent of "in the pipeline" projects. The Regional Administrator would decide which projects would have EIS's, and which could be prepared in-house or by consultants. After a few years, the number of "new" projects would increase until all projects are "new" projects. For example, in FY '75 there will be 500 "new" projects as opposed to 1,700 projects "in the pipeline." Other grants will be approved but will not require EIS's either because they will have been done already or because they will not yet be required. But in FY '76, the number of "new" projects will increase to 1,300 and the number of "in the pipeline" projects will decrease slightly to 1,450.

What kinds of projects have had EIS's in the past? In terms of environmental issues, they have varied greatly. Some of the more common issues have been location of plant, effluent discharge points, means of sludge disposal, growth implications, and effects on another community's supply of potable or recreational waters. Almost twice as many statements have been written for projects under $10 million as for projects over $10 million.

Total expected project cost*	# EIS's written
Under $1 million	17
$1 — $5 million	11
$5 — $10 million	3
$10 — $20 million	0
Over $20 million	8
TOTAL	47

*As encouraged by EPA policy, many EIS's represent more than one project. Figures here represent the sum cost of all projects included under a single EIS.

Since no single category of projects is more likely to produce environmental insults than any other, any set of criteria should be designed to:

- Take the guesswork out of EIS decision-making.

- Assure EIS's are being written on the right projects.
- Resist external political pressure and internal administrative pressure against preparing EIS's.

The following are examples of the kinds of criteria that could be established. An EIS would have to be written when a project involves:

- A new treatment plant or an expansion of an existing plant that provides excess plant capacity (design capacity minus initial use capacity) of 40 percent or more.**
- Total project costs of $10 million or more in cases other than an upgrading of an existing facility or a renovation or separation of existing sewer lines.
- Interceptor sewer lines that will pass through, run adjacent to, or otherwise serve undeveloped land of 1,000 acres or more.
- A wetlands area.
- Discharging into an estuarine area.
- A public water supply.
- Historic properties.
- An air basin which is critically polluted.
- Controversial environmental considerations.

The Review Group estimates that application of triggering criteria may result in the preparation of EIS's on about 10 percent of "new" projects. The Work Group favors establishment of a two-part system employing threshold criteria for "new" projects and a regional target for EIS's prepared on "in the pipeline" projects. Such a system would:

- Reduce current criticism of EPA for preparing "too few" impact statements.
- Improve the image of the Agency as protector of the environment.
- Involve other Federal agencies and the public in the decision-making process.
- Reduce risk of lawsuits on grounds of not complying with NEPA.

Advisability of Using an EIS as a Decision-Making Document. There will be instances where some environmental issues will be unresolved at the end of facilities planning. These unresolved issues will be discussed in the EIS. The question is whether the EIS should be viewed as a decision-making document in these cases. Would the Agency be justified in taking a hard look at the approvability of the project on the basis of the EIS?

In the case of the Environmental Protection Agency, environmental protection is our business. Therefore, our EIS's are unique and should weigh in a single document the advantages in terms of improved water quality against any possible disadvantages to the air, water, animal, and human environments. The Review Group believes that an EIS prepared by EPA is a decision-making document.

Conclusions and Recommendations

It is evident from the study that there is considerable room for improvement in fulfilling the goal of constructing waste water treatment facilities that do not adversely affect the environment. Many individuals within the Agency are working hard to improve the Construction Grants Program in their area. Nevertheless, the Review Group concludes that further progress requires Agency policy to explicitly state that new projects will be approved only if a good facilities plan, including a thorough evaluation of environmental effects, is provided. Such a strong commitment is essential to maintain the program's environmental integrity. In addition, EPA should:

- Take an active role in implementing the new facilities planning guidance, especially with regard to environmental considerations.
- Insist that program grantees prepare a good facilities plan which the Agency can use as the basis for a draft EIS.

**During its study of environmental evaluation, the project work group found several projects which would have met this criterion.

- Use informal means to encourage applicants to hire consultants with strong environmental expertise.

- Develop a set of objective threshold criteria clearly specifying when an EIS is required on "new" projects.

- Make EIS decisions as early as possible in the project.

- Establish a procedure for Regional Administrators to set their own targets for the number of EIS's to be prepared on "in the pipeline" projects.

- Develop procedural guidance specifically addressing needs of applicants and setting quality criteria to be used by Regional Offices in evaluating the environmental aspects in facilities plans.

- Begin research into the area of how best to predict environmental impacts of construction grants projects.

- Hold a meeting of all Regional Facilities Planning Branch Directors, Construction Grant Division Directors, and selected staff to explain the Agency's environmental commitment and discuss methods of implementation.

V. PROTECTING PROGRAM INTEGRITY

This chapter addresses problems and makes recommendations related to protecting the integrity of the Construction Grants Program. The term "integrity" is used here to mean the avoidance of the broad range of fraudulent activities and other irregularities to which the program is vulnerable. The spectrum runs from criminal fraud (that is, the knowing and willing falsification of a material fact or of a claim on the Federal purse) to employee misconduct, unreasonably high profits, unsatisfactory work, and other situations that do not involve illegalities but arise from neglect or incompetence.

The *grantee* is, of course, primarily responsible for ensuring the integrity of projects under his control, and some responsibility is borne by the State agencies involved. However, EPA cannot shirk its ultimate responsibility for the stewardship of billions of public dollars.

Fortunately, the Construction Grants Program has not yet been hit by the types of scandals that rocked Federal highway construction programs in the mid-60's and Federal housing programs in the early 70's. Nonetheless, it is the Review Group's conclusion, one that is shared by most of those associated with the program in Headquarters and the Regions, that the Agency is not now doing an adequate job of protecting the overall integrity of the program.

The problem is not one of overall program design. The essence of the problem relates to the rapid mushrooming of the program from about $700 million obligated in 1968 to $3.6 billion in FY 74, making it one of the nation's largest public works program. A public works program of this size affords vastly expanded temptations and opportunities for the gamut of irregularities. At the same time, the manpower devoted to the program has not kept pace with this growth. In response to increasing workload, attention has been devoted to meeting minimum legal requirements related to the processing of projects, to the detriment of other functions (or examples, inspections which are more related to the prevention of irregularities.

The protection of a program's fiscal and administrative integrity is best approached through an integrated system of activities performed by operational personnel at Federal/State/local levels, backed up by a strong independent audit function. This chapter discusses such a system in terms of the following elements:

- Guidance on desirable practices.
- Selection of consultants and contractors.
- Education of EPA, State, and grantee personnel.
- Selected reviews.
- Project inspection.
- Independent audits.
- Reporting and investigation.

The overall objectives of the approach outlined are to: (1) deter attempts to undermine the program's integrity; (2) increase the probability of detecting those irregularities that do occur; and (3) increase the probability that those involved in such irregularities are identified and dealt with in an appropriate manner. The most desirable mix of these activities can only be determined after a lengthy trial and error process of assessing relative and combined effectiveness and cost, and is subject to constraints imposed by resource availability.

Guidance on Desirable Practices

The Construction Grants Program is a nationwide program wherein matched Federal and State funds are funneled to local jurisdictions which, in turn, contract with consulting firms and construction companies. It is to be expected

that legal requirements and practice with respect to fiscal accountability will vary widely from one grantee to another, as will their experience with large-scale construction programs.

Guidance intended to supplement and explain formal requirements contained in law or regulations is currently provided grantees by the Regional Offices, but it varies considerably in coverage and, in some instances, is inconsistent. Of the eight Regions canvassed on this topic, six saw the need for improved, uniform, comprehensive guidance. This need is confirmed by a series of pilot audits of projects under construction, conducted by EPA's Office of Audit early in 1974. The major findings of these audits are:

- Grantee accounting systems and controls are inadequate in regard to segregating eligible costs, reviewing billings from A/E consultants, and withholding payments for unacceptable work.

- Grantee procurement systems are inadequate in regard to contracting for architectural and engineering (A/E) consultant services, evaluating unbalanced bids for unit-price contracts, and reviewing construction change orders.

- Grantees and their resident engineers do not have formal procedures in regard to quantities under unit-price contracts.

Clearly stated guidance on desired practices is the starting point for protecting program integrity. Such guidance could be provided through the Construction Grants Manual, EPA/State/grantee conferences, responses to grantee inquiries, and on-site technical assistance. The appropriate method will depend upon the subject matter to be covered, the specific problems of the grantee involved, and the resources available to the Agency for administering the construction grants program. However, the Review Group feels that in any event, a written package containing clear, concise information regarding desirable practices in the areas of accounting, procurement, and project management would be of use to many grantees.

The primary objective of written guidance would be to describe systems and procedures that would be valuable in carrying out the stewardship function, particularly in deterring and detecting fraud and other irregularities. The material would be written for the grantee who has basically adequate systems, procedures, and staff capabilities, but who is faced only infrequently with managing a large construction grant project. Many of the larger grantees, and their A/E consultants, operate acceptable systems and procedures. In order to keep disruption of existing acceptable practices to a minimum, any guidance developed by EPA should be flexible enough to accept different procedural approaches. We believe, however, that even the most sophisticated grantee will benefit from a discussion of desirable practices, while less capable grantees may well require contractual assistance in developing and maintaining adequate systems and procedures.

The following topics should be considered for inclusion in this written guidance:

- Desirable *accounting practices*, including:

  Segregation and identification of project costs by type of expense and eligibility.

  Segregation and identification of receipts from the Federal Government, and from rebates and refunds.

  Support and documentation of in-house costs such as force accounts and administrative overhead.

  Review and payment of billings for professional services and construction work, particularly quantities billed under unit-price contracts.

  A system of internal controls adequate to deter fraud or irregularities by an individual working alone or in collusion with others.

  Accountability for supplies and nonfixed equipment purchased with project funds.

  Preparation of Federal payment requests.

- Desirable *procurement practices*, including procedures for:

Selecting qualified consultants and negotiating contracts at a fair and reasonable price.

Bidding and awarding of construction contracts with emphasis on invitation for bid requirements and on unit-price contracts.

Reviewing change orders, especially where a change of project scope or a significant increase in quantities under a unit-price contract is involved.

Determining when work is unacceptable, and withholding payments pending appropriate actions.

- Desirable *project management practices*, including:

  Utilization of project management aids such as PERT to track construction progress and costs and to highlight potential problem areas as soon as possible.

  Control of the quality of the work performed by consultants through periodic reviews.

  Control of the quality of work performed by construction contractors, primarily through a strong resident inspection function.

  Good working relationship between the grantee's staff and the A/E consultant, who is often delegated almost total responsibility for the design and construction of the waste facility.

The written materials described will provide a basis upon which a Region could structure the guidance needed by individual grantees. As discussed in Chapter II, the Review Group is recommending a series of face-to-face conferences involving EPA, States, and grantees to further discuss the impact of Federal requirements in specific cases. The preapplication conference would be the appropriate time to review the guidance package in general and to discuss in some detail the sections dealing with (1) A/E consultant selection and quality control and (2) systems and procedures pertaining to construction, particularly construction requiring a long lead time for development. The practices dealing with construction would then be covered in detail during the preconstruction conference.

This emphasis on written materials and periodic conferences should reduce the number of problems that have in the past resulted in time-consuming inquiries and requests for technical assistance.

The dissemination of EPA information should be closely coordinated with States that provide similar guidance to their treatment authorities. (As a means of strengthening the role of the States and reducing EPA personnel requirements, EPA should explore having States handle the entire information-dissemination function.)

We recommend that EPA develop and distribute guidance to grant applicants and A/E consultants on preferred accounting, procurement, and project management practices. The Grants Administration Division should have lead responsibility for the development of this guidance.

Selection of Consultants and Contractors

The selection of A/E consultants is a critical step in the construction grants process since they play a major role in several areas that hold potential for fraud or other irregularities. A/E consultants influence site selection, prepare plans and specifications, screen change orders, and — most important — normally provide construction inspection services. In fact, many grantees delegate almost total responsibility for the design and construction of sewage facilities to their A/E consultants.

Contractors are, of course, responsible for the actual construction of the facility, and it is during the construction phase that the greatest potential for irregularities exists. Table V-1 illustrates some of the potential irregularities.

The selection of honest and competent A/E consultants and contractors is clearly an important mechanism for limiting potential abuses. The primary responsibility for selection appropriately lies with the grantee. However, EPA has the right and should have the ability to help the grantee make his choice, even to the point of excluding or disqualifying specific contractors from participation in the construction grants program under specified conditions. To improve

the selection process EPA can promulgate regulations, carry out cost analyses of contracts, and disqualify certain contractors or consultants.

Promulgation of Regulations. EPA is currently drafting regulations (35.936 and 35.937) covering negotiated procurements, which include the services of A/E consultants. These regulations should include the following provisions:

- Adequate *public announcement* of any requirements for A/E consultant service which is anticipated to be in excess of a minimum dollar amount.
- The *selection* of a minimum of three qualified A/E consultants by a technical evaluation panel, primarily on the basis of experience, size of job, and prior performance.
- The *negotiation* of a contract at a fair and reasonable price with the consultant found to be most qualified by the technical evaluation panel (with provisions to be followed should negotiations with the most qualified consultant not be successful).
- Limitation on *the form of contract*; percentage of construction cost and the cost-plus-percentage-of-cost types of fee contracts should be excluded.
- The retention by the grantee of sufficiently detailed *records* to document the factors used in selecting an A/E consultant and negotiating his fees; these records would be made available to the Agency and the general public upon request.
- Authority for the Regional Administrator to modify or waive these requirements prior to the award of such a contract.

EPA should promulgate regulations covering the selection and negotiation of personal and professional services as soon as possible.

Cost Analyses of Contracts. The opportunity exists for a consultant to earn unreasonably high profits on construction grants projects. To a certain extent, profits will be brought under control by excluding certain types of contracts as recommended above. However, the experience of EPA's Contract Cost Review Branch in reviewing contracts in other programs indicates that further costs analyses may yield handsome returns.

In a cost-plus-fixed-fee type of contract a cost analysis would focus on three questions:

- Are the direct labor charges (dollars per man-hour) reasonable for the type of service provided?
- Is the overhead multiplier justified, measured either against industry standards or against rates previously negotiated for Federal work?
- Are the out-of-pocket expenses quoted reasonable and allowable?

In particular, the Cost Review Branch reports that individual consultants have quoted an overhead multiplier of 2.5 to 3.0 (that is, the firm's indirect costs of keeping a consultant on a project are 2.5 or 3.0 times his salary and direct benefits), where a 1.5 multiplier would generally have been more appropriate.

Because the primary responsibility for ensuring that fees are reasonable belongs to the grantee, the Agency should allow grantees to certify that an adequate cost analysis has been performed. While EPA reviews do not require a large amount of EPA manpower (perhaps 1 to 2 man-days per contract), they could delay approval of grant applications. The main impact from EPA reviews may come early in the program when they will demonstrate that EPA means to seriously enforce its regulations on reasonable costs; subsequently the reviews would be used selectively.

The Review Group supports the proposed revisions to the General Grant Regulations which would require "cost analyses" for all negotiated contracts for professional services which exceed a specified amount. *We recommend that the Cost Review Branch and the Grants Administration Division undertake a pilot program of cost analyses of consultant contracts.* The program might consist of reviewing all contracts received in one or more Regional Offices during a specific month. The purpose of the pilot program would be to determine the size of potential dollar savings, the Regional workload involved, the extent of potential grant

TABLE V-1

ILLUSTRATIONS OF IRREGULARITIES
POTENTIALLY ARISING DURING CONSTRUCTION

ACTIVITY OR ACTION	POTENTIAL IRREGULARITIES
Procurement of materials and equipment	1. Materials and equipment do not meet specifications. 2. Quantities received are less than quantities billed. 3. Prices billed are greater than the prices bid.
Placement or removal of materials and equipment	1. Sewer pipe improperly bedded or jointed. 2. Pilings not driven to specified resistance. 3. Quantities of materials put in place, such as cubic yards of concrete, overstated on unit price contracts. 4. Equipment not installed in accordance with specifications.
Materials and systems testing	1. Concrete structure approved that does not meet strength specifications. 2. Sewers approved that do not meet integrity tests. 3. Plant and plant components approved that do not meet prescribed efficiencies.
Change orders	1. Change orders of unreasonably high cost approved. 2. Orders approved for unnecessary work. 3. Orders approved to mask mistakes during design phase.
Force account work	1. Vouchers submitted for work not performed.

	3. Ineligible direct or indirect costs approved.
Resident inspection	4. Inspection not conducted, incompetently conducted, or dishonestly conducted.
Payments	5. Vouchers submitted for work not done or for ineligible costs.

processing delays, and reasonable criteria for selecting which contracts are to be reviewed by EPA on an operational basis. Subsequently, review guidelines should be developed for inclusion in the Construction Grants Manual.

Debarment and Suspension Procedures. The disqualification of certain contractors and consultants for cause would be a powerful deterrent to certain kinds of abuses. To be effective, a formal debarment and suspension process is required, both to ensure adequate dissemination of the information to appropriate EPA offices, and to provide due process to the contractors involved.

At least two related programs already exist in the Agency:

- EPA Regulation 15.1-6 sets forth the Agency's policy and procedures for debarring or suspending for cause potential bidders on EPA contracts.

- Two Federal Government debarment and suspension lists are currently distributed within EPA: (1) the Consolidated List of Current Administrative Debarments by Executive Agencies, distributed quarterly by the General Services Administration and (2) a similar list of persons or firms debarred for violations of statutory labor standards (for example, Davis-Bacon Act), distributed quarterly by the General Accounting Office.

A number of Federal agencies, including the Department of Housing and Urban Development and GSA, have established formal intragency programs for debarring, suspending, or otherwise disqualifying ineligible grantees and contractors.

The Review Group believes that a debarment and suspension list should be developed and that the Regional Offices should be encouraged to use it. At a minimum, construction contractors would be subject to such procedures. Although the code of ethics of the A/E profession generally provides adequate protection, the Review Group believes that EPA should also debar and suspend A/E consultants should circumstances warrant such harsh action.

We recommend that EPA establish and maintain a debarment and suspension list. Preferably, the list applicable to construction grants awards would be compiled and distributed jointly with the lists currently being distributed. The Office of General Counsel should be responsible for drafting the necessary regulations and periodically reviewing the operation of such a program.

Education of EPA, State, and Grantee Personnel

The preceding discussion has touched on the need for increased awareness among Construction Grants Program personnel regarding activities which might corrupt the program's integrity. The Review Group believes that this need is important enough to warrant an extensive program of education.

We are talking about a formal training program which would cover a variety of topics, including the following:

- The nature of fraud and other irregularities, focusing on how acts might be perpetrated and what those involved stand to gain.

- Common approaches to building systematic controls that deter wrongdoing or increase the probability of detecting acts that do take place.

- How to recognize situations or patterns of behavior where irregularities might be present.

- Procedures for referring suspicious cases to the appropriate person within, or outside of, the Agency.

The training program would include a brief orientation course for all program personnel, intended primarily to increase awareness of potential problems. In addition, courses tailored to the needs of specific jobs would be developed, utilizing a mix of lectures and case studies designed to take those individuals beyond simple awareness. Highest priority should be given to courses for project inspectors and those reviewing grantee submissions. Eventually, such courses should be made available to the States and to grantees.

We recommend that the Office of Planning and Management coordinate and expedite the development of a "program integrity" training program.

Selected Reviews

The existing review process affords a number of opportunities for the control of fraudulent and other irregular activities in connection with construction grants. The two major shortcomings of the current process are that insufficient emphasis is given to the detection of irregularities, and that the nature of the review varies widely from Region to Region. Those elements of the review process that seem to hold the highest potential for the control of irregularities are discussed below, together with specific recommendations for improvements. Routine reviews of grantee submissions have the potential of spotting possible trouble points with a low expenditure of manpower. However, except in special cases, the reviewer is not able to detect more than the obvious attempts to corrupt program integrity. The Review Group believes that these reviews should be redirected so that only selected submissions receive more than a cursory review, and that these more intensive reviews on selected submissions be focused on detecting possible fraud or irregularities.

Design Specifications. A significant potential for corrupting the integrity of the Construction Grants Program lies in precluding competition in the procurement of materials and equipment through restrictive specifications. Because of the high incidence of such specifications in the past, PL 92-500 requires EPA to review plans and specifications as follows:

> No specification for bids or statement of work in connection with such works shall be written in such a manner as to contain proprietary, exclusionary, or discriminatory requirements other than those based upon performance, unless such requirements are necessary to test or demonstrate a specific thing or to provide for necessary interchangeability of parts and equipment or at least two brand names or trade names of comparable quality or utility are listed and are followed by the words "or equal".

All Regions currently review design specifications for such restrictions, but the extent of review varies among the Regions from as little as 10 minutes to as much as 1 man-day per project. Region V, for example, estimates that deficiencies are uncovered in over 50 percent of the design specifications it reviews, but data are not available to quantify the resulting benefits.

The Review Group believes that the complaint procedures outlined in the Construction Grants Regulations (35.939) are adequate to allow this statutory requirement to be largely self-policing. However, guidelines should be developed so that these reviews, to the extent that they should be done, are approached consistently among the Regions. The guidelines should include coverage of format for (1) base bids, (2) alternate bids, and (3) adds and deducts to base bids. *We recommend that the Office of Water Program Operations, after determining a desirable level for reviewing restrictive specifications, prepare guidelines for inclusion in the Construction Grants Manual.*

Bid Tabulations. The review of construction contract bid tabulations can be important for achieving cost-effectiveness and for maintaining program integrity. The irregularity that holds the greatest potential for fraud is the attempt by an applicant to unjustifiably award a contract to other than the low bidder. Other possible irregularities include "unbalancing" bids on unit-price contracts (that is, inflating bids for certain

components and deflating bids for interest and the inclusion of ineligible costs.

All Regions review bid tabulations, but again the nature of the review varies considerably from one Region to another. Within a Region, review efforts vary among projects, with the most attention being paid to those tabulations that contain (1) single bids, (2) bids substantially higher than engineering estimates, or (3) unbalanced bids on unit-price contracts.

Data are not available to permit quantitative evaluation of the benefits of bid tabulation reviews. The majority of Regional personnel interviewed, however, believe that the reviews are of substantial value and should be continued. An average of about 1 man-day per project is required for an adequate bid tabulation review.

We recommend that the Office of Water Program Operations, after determining a desirable level for reviewing bid tabulations, prepare, in coordination with the Grants Administration Division, guidelines for inclusion in the Construction Grants Manual.

Change Orders. It is common practice in construction contracting to include procedures for "change orders" through which design specifications may be amended as construction proceeds in order to accommodate unforeseen circumstances. Without such provisions, the uncertainties inherent in a large construction project would cause potential contractors to bid higher prices if they would bid at all. Unfortunately, change orders are often used by contractors to "get well", or make higher profits, once a contract has been let through competitive bidding.

As in the other types of reviews discussed in this section, the manpower devoted to reviewing change orders varies considerably among the Regions. Some Regions review change orders in detail to determine if the work is already reflected in the bid price, if the change seems justified, and if the cost is eligible for Federal participation; other Regions confine their reviews mainly to cost eligibility. Eight Regions identified guidelines for the review of change orders as an important need.

We recommend that the Office of Water Program Operations, after determining a desirable level for reviewing change orders, prepare, in coordination with the Grants Administration Division, guidelines for inclusion in the Construction Grants Manual.

Project Inspections

The formal reviews and approvals described above typically take place within the confines of the EPA Regional Offices. While bringing the papers to the reviewer saves EPA manpower, it necessarily reduces EPA's familiarity with the project itself. Monitoring tasks that cannot be handled effectively within a Regional Office are handled by project inspectors.

Interim Inspections. The frequency of interim inspections varies widely among the Regions, primarily because of different program priorities and general manpower constraints. One Region conducts at least two inspections per project annually, four Regions conduct them less frequently, and five Regions make no inspections. Interim inspections generally average 1 man-day and cover, to the extent possible, (1) the percent of work complete, (2) the general quality of construction, (3) current and potential problems, and (4) general compliance with grant conditions.

The utility of such inspections in ensuring cost-effective facilities has been discussed in Chapter II. The Review group believes that interim inspections could, in addition, play an important role in deterring and detecting irregularities. A project in New York State provides a striking example of this potential role. The interim inspection in this case detected deficiencies which caused EPA to withhold project payments. Subsequent investigation led to indictment of the project contractor, pipe supplier, former town attorney, project engineer, and field foreman on 107 counts of criminal activity.

An expanded or redirected interim inspection could appropriately address the following areas, in addition to the four mentioned above:

- The quality of project management or supervision by the grantee or his A-E consultant.

- Unsafe construction practices such as inadequate shoring of ditches or traffic warnings.

- Construction deficiencies, such as improper jointing of pipe or honeycombed concrete.
- The activities performed and documentation maintained by the resident inspector.

An EPA inspector can visit the typical project only periodically and then only for a relatively short time. The resident inspector is on the job full time and is charged with protecting the public interest. Earlier in this chapter we recommended that guidance be provided the grantee, and his A/E consultant, on what constitutes an adequate resident inspection function. *We recommend that the primary focus of EPA interim inspections be on "inspection of the resident inspector", and that the Office of Water Program Operations develop guidelines for such inspections for inclusion in the Construction Grants Manual.*

The recently initiated construction audit program has pointed up a variety of areas that should receive particular attention, including the adequacy of documentation to support (1) quantities billed under unit price contracts, (2) the cause and cost of change orders, and (3) A/E inspection services billed on a cost basis. Expanding the emphasis on detection or deterrence of fraud and other irregularities would increase interim inspections from an average of 1 man-day to 2 man-days per visit.

Grantees handle the resident inspector function in essentially two ways: larger municipalities frequently use their own inspectors; the smaller ones generally pay their A/E consultant to perform the service. From the point of view of integrity, the first approach may be advantageous in that it introduces a third party at the construction site, which tends to deter collusion. The Federal-State highway program uses State employees for resident inspectors. Federal Highway Administration officials interviewed believe this approach is very effective. *We recommend that the Office of Planning and Management evaluate the alternative means of handling the resident inspector function from the standpoint of deterring irregularities and of impact on a project's eligible costs.*

Final Inspections. A final inspection is currently made of all construction grants projects before the grantee submits his final payment request. Essentially, this is an engineering "sign-off", and the inspection is primarily concerned with the condition of the physical plant and its operational effectiveness. Final inspections have some potential for the detection of fraud, depending upon the project's record of interim inspections, but fraud detection currently receives little emphasis.

The proposed initiation of a universal interim inspection program, and the changing nature of the Agency's compliance assurance program, raise questions about the role of these final inspections. For the time being, the Review Group concludes that final inspections should continue to seek their traditional objectives. *However, we recommend that the Office of Water Program Operations prepare guidelines on final inspections for inclusion in the Construction Grants Manual. In addition, we recommend that the Office of Water Program Operations design and implement a program of data collection and analysis that will determine the most effective combination of interim and final inspections.*

Independent Audits

So far in this chapter, we have discussed several approaches to deterring or detecting fraud and other irregularities and maintaining the integrity of the Construction Grants Program, including: (1) additional regulations and improved guidance for the grantee so that he knows what is required or expected, and (2) improved guidelines for the desk reviews and field inspections conducted by the EPA Regional Offices. A necessary additional element in the Agency's overall system of control is a strong, independent audit function. Auditors conduct reviews that are intended to accomplish a variety of objectives, ranging from determining that a payment request should be paid, to determining that a program is being run in compliance with pertinent laws and regulations. It is important to note that in carrying out this function, EPA's Office of Audit has the authority and responsibility to review the books and activities of grantees, their subcontractors, involved State agencies and EPA offices.

Through FY '74, the Office of Audit's only recurring involvement with the Construction Grants Program was to conduct final audits of a grantee's construction account on all projects. In most instances, these audits consisted of (1) a reconciliation of accounts to determine that the

grantee has actually spent the money claimed, (2) a review for exclusion of ineligible expenditures, and (3) for audits conducted in the field, a visit to the project to see if it is in operation, O&M is being performed, required samples are being taken, etc. Although such audits have provided an additional assurance that the requests for Federal grant payments are valid and should be paid, there is little evidence that they have been effective in deterring or detecting fraud or other irregularities. *We recommend adoption of recent proposals to expand the construction grants audit program to provide the capability for conducting audits prior to start of a Step 1 grant and during construction of a facility, as well as the traditional final audits.*

Preconstruction Audits. Preconstruction audits would be conducted on selected grantee activities from award of Step 1 grants to the start of construction. The audits would be designed to determine the adequacy of the grantee's policies, procedures, practices, and internal controls relating to:

- Accounting for eligible and ineligible costs.
- Procuring engineering and construction services, supplies, and equipment.
- Inspecting and auditing the work performed by the consultants and construction contractors.
- Pricing and processing of construction change orders.
- Preparing interim and final requests for Federal payments.

The primary advantage of preconstruction audits is that they provide the opportunity to detect and correct severe deficiencies in the financial and management systems before a project's cost is affected. Should inadequacies be uncovered, corrective actions would be suggested or required as a condition for further grants. The results of preconstruction audits would be used in planning future audits for an individual project or grantee.

Preconstruction audits would be the exception rather than the rule, and would be conducted in the case of severe problems that cannot be handled by the types of guidance discussed earlier. Regional personnel would determine the need for such an audit as a result of reviewing a grantee's submissions or providing routine technical assistance. Preconstruction audits may be required on only 5 to 10 percent of the active Step 1 and Step 3 projects. The Office of Audit has estimated that such an audit would typically require 15 man-days, although this may be revised with experience.

We recommend that the Office of Audit undertake a pilot program of preconstruction audits as soon as possible. The pilot program would seek to develop guidelines to help the Regions determine when to request such audits, to develop an "audit guide" for use in future preconstruction audits, and to recommend a level of staffing.

Construction Audits. Departing from its practice of auditing construction grants only "after the fact", the Office of Audit recently conducted a pilot program in which four projects were audited during construction. These "construction" audits were more comprehensive than the typical final audit in that they covered the adequacy, effectiveness, and reliability of the grantees' accounting, procurement, and management systems. The audits disclosed a number of weaknesses or difficulties, which could have provided ample opportunity for the mismanagement or misappropriation of project funds. In addition, the pilot program was of value in establishing a Federal "audit presence". (Before the audits were completed, inquiries were received concerning their findings from such dispersed places as Seattle and Boston.)

As a result of the pilot program, EPA has instituted a program of construction audits. In FY 75, 18 audit man-years have been allocated to the function, at an average of 75 man-days per audit. 170 projects, or about 5 percent of those under construction, will be audited.

During FY 75, the following criteria will be used in selecting projects for construction audits:

- Project involves substantial A/E consultant fees.
- Construction contract includes unit prices.
- Grantee has not had a prior EPA audit.
- Grantee has submitted at least one construction payment request.

- Other factors being equal, large projects will receive priority over small projects.

Construction audits will also be undertaken at the request of a Regional Administrator. Eventually, the need for these audits is expected to be identified primarily as a result of interim construction inspections.

These construction audits will be designed to cover the following areas:

- Review and evaluation of policies, procedures, and practices (including those of the A/E consultants), and selective tests of transactions to determine the adequacy or inadequacy of the accounting, procurement, and management systems.

- Review of eligible and ineligible costs, with special attention to interest, damage awards, site acquisition costs, bonus payments, costs in excess of bid price, normal government costs, and unnecessary or unreasonable costs.

- Review of construction contracts, particularly unit-price contracts.

- Review of procurement procedures for consultants.

- Collection of statistical data on the cost of A/E consultant services including project design, supervision of construction, and preparation of O&M manuals.

The results of about 50 construction audits will be evaluated in the center to provide a mid-year assessment and permit adjustments to the program.

Final Audits. As preconstruction and construction audits will be conducted only on perhaps 10 percent of projects active during a given year, the need for a universal final audit remains. The Review Group agrees with the Office of Audit, however, that the nature of these final audits should be revised.

Two types of final audits have been conducted: *desk audits* conducted in area audit offices using project file data (an average 7 man-days per project) and *field audits* conducted at grantee offices using the more extensive documentation available there, and averaging 10 man-days.

During FY 74, field audits were conducted on all grants where the Federal share exceeded $250,000. Although field audits could be conducted on smaller projects where a review of project files indicated it might be necessary, this was seldom done due to staffing constraints. One problem of this approach was that excessive manpower may have been devoted to "clean" projects (that is, projects whose files would have indicated good bid tabulations, relatively small A/E consultant changes, no force account labor, no inspection deficiencies, etc. In addition, the number of irregularities detected by final audits has been minimal. During the 2½ year period ending December 31, 1973, 1,700 audit reports were issued covering projects costing about $1 billion; no report indicated fraud or collusion.

In FY 75, the Office of Audit plans to remove this strict dollar criterion. Each project file will be briefly reviewed to determine if a desk audit will suffice. As in the construction audit, the size of a project will influence the decision to require a field audit, but only as one of several factors to be considered. The field audits that are conducted will be more thorough and will include additional tests designed to detect the possibility of fraud and other irregularities. An estimated 10 man-days of effort will be required for the typical final field audit using this approach. A small number of projects will also necessarily be subjected to a substantially expanded field audit, similar in scope and depth to the construction audit.

We recommend that a more comprehensive audit program be brought up to speed as soon as possible. The Office of Audit should also institute a program designed to collect the statistical data necessary to further define the most cost-effective audit program.

Staffing Considerations. A more comprehensive audit program will require additional auditors. Although the Review Group feels that the need might best be met with career Federal employees, the possibility of using temporary Federal employees, State and local auditors, or contract auditors should be considered.

During the past several years, the Office of Audit has actively pursued an innovative solution to its staffing needs — the hiring of retired auditors as temporary EPA employees. This program has several advantages:

- *Experienced personnel* — As of April 30, 1974, the Office of Audit had hired 50 auditors under this program. These individuals are generally GS-12 to GS-13 Federal auditors who have retired on an annuity but, for one reason or another, desire to continue working. During FY-75, the Office of Audit anticipates getting 30 man-years of effort from these employees, or over 25 percent of its total staffing.

- *Low cost* — During FY-74, the average cost to the Federal Government of using retirees was $5.52 per man-hour, far less than either career employees or contract accountants.

- *Management flexibility* — These employees are paid only for the hours they spend on an audit assignment, and they are dispersed geographically, which reduces travel costs in reaching remote construction projects.

As this paper is being prepared, the Office of Audit has been allowed to hire Federal retirees at higher GS levels; this increase in pay scales may attract even more of these individuals. Although there are more forms of temporary employment that might be considered — for example, consultants — the retiree program should continue to be exploited, subject to overriding personnel management considerations.

In FY-71 the Office of Audit initiated a second innovative program to meet its staffing needs: contracting with State auditors to perform EPA audits within a State. State auditors in New York, Indiana, and California performed about 10 percent of the 700 construction grant final audits completed during FY-74, at a relatively low cost to EPA. Audit costs in California and New York were shared 50/50 with the States; Indiana performed the audits free of charge. The Office of Audit plans to renew its efforts to develop cooperative Federal/State audit programs; however, the potential of such a program is limited by a variety of factors, such as:

- The State must have a qualified audit group, possibly attached to the State controller agency, executive branch, or legislature.

- The State must be willing to conduct an audit that meets EPA requirements, at a fair and reasonable cost.

- The State should have a financial stake in the projects it audits — that is, a supplementary State construction grant program.

- The volume of work in the State should be sufficient to justify the initial efforts necessary to implement such a cooperative program.

- In most cases, only routine final audits should be performed by the States, with EPA staff conducting the intensive audits discussed in this Chapter.

The Office of Audit has tentatively identified Michigan, Texas, Washington, Ohio, Pennsylvania and Wisconsin as potential candidates for this program. During FY-74, 30 percent of all final audits completed on construction grants were conducted in these six States; if the program could be expanded to include these States as many as 80 percent of all routine final audits would then be conducted by State auditors. The one major change recommended from existing practice is that these cooperative audits should be financed through "construction grant fees", levied by the State on the grantee, rather than through EPA contract funds. In addition, the possibility of contracting with local government auditors should be explored in special circumstances.

A final alternative considered is that of contracting with independent public accountants (IPA's) to perform audits to EPA specifications. A brief analysis of this approach, based primarily on EPA's experience with such a program during FY-74, has led to these observations:

- *Direct costs* — While government accounting practices defy a definitive comparison, it would appear that the direct cost per man-hour of IPA assistance is no more than the cost per man-hour of career EPA auditors. This estimate, approximately $30/man-hour, is based on the following assumptions:

- The average grade of EPA auditors (excluding retired annuitants) will continue to be GS-12 or 13.

- The average EPA auditor will continue to be available 180 man-days/year for audit assignments.

- The indirect costs (including real costs such as office space, but excluding out-of-pocket expenses such as travel) of an EPA auditor are at least 50 percent of his direct labor costs (salary plus cash employee benefits).

- Both IPA and EPA auditors average 5 to 6 man-days to conduct a field audit.

- *Administrative problems* — The Office of Audit reports that 8 man-years of EPA effort were required to administer approximately 8 man-years of IPA audit effort during FY-73. The Agency should clearly not resort to IPA's again unless this administrative overhead can be sharply reduced. Federal contract procedures, and the Office of Audit's responsibility to provide quality control, probably mean that it will continue to cost more to administer and supervise IPA's than EPA employees; however, it should be possible to reduce this additional administrative burden to the point where it takes perhaps 1 additional EPA man-year to administer 10 contract IPA man-years. The means to achieve this require further study, but might include using simplified contracting procedures and contracting for services only in selected States or metropolitan areas, rather than nationwide as in FY-73.

- *Audit quality* — The experience of the Office of Audit in FY-73 was that, given the limited number of EPA audits handled by any one IPA, they tended to start each audit assignment "cold". This problem could perhaps be overcome by specifying that EPA audits be performed by only a limited number of qualified IPA's. An additional problem was that, compared to EPA auditors, IPA's tend to be more "conservative" that is, they tend to look only at the facts presented on paper and hesitate to question reported costs of a grantee's internal control. This conservatism will continue to require consideration in any future dealings with IPA's.

The Office of Audit reports that other Federal agencies have had similar problems with contracting for services with IPA's; an on-going study by the General Accounting Office may provide additional insight into cost-effective approaches, but probably not before the middle of FY-75. In the meantime, personnel ceilings may force EPA to once again explore this option. *In addition, OPM should explore the possibilities of allowing selected grantees to contract directly with qualified IPA's, paying for their services with construction grant funds.*

Reporting and Investigation

Whenever there is suspicion of wrongdoing in any phase of the construction grants process, the investigative capability to follow it through must exist. This function is currently shared by the States and localities, the FBI, and EPA's Security and Inspection Staff. In 1973 and 1974, 18 cases were investigated: 11 by the FBI and seven by EPA. An unknown number of additional cases were investigated by State and local agencies.

Current EPA policy and guidance in this area are covered by EPA Order 3120.1 titled "Investigation and Reporting of Illegal or Unethical Conduct". This five-page order covers in broad terms some of the major elements of policy and procedural guidance, but the Review Group thinks that it should be strengthened by additional detail. It is possible that improper actions resulting from the lack of detailed guidelines has seriously weakened several potential criminal cases. This more detailed guidance should include coverage of:

- Clear procedures for reporting incidents to the appropriate authority.

- Regional and headquarters responsibilities for processing complaints and for determining which allegations are to be investigated.

- Standards for conducting investigations and for determining when to make referrals to the Department of Justice, the FBI or U.S. Attorneys.

- Procedures for identifying and tracking the status of investigations being carried on by personnel of the Agency, and by other Federal, State and local authorities.

Until such detailed procedures are worked out, the Task Force does not feel it can make recommendations regarding the resource needs in EPA's investigative function.

It is recommended that the Office of Planning and Management develop more detailed policy and procedures concerning the reporting and investigation of violations of either EPA Standards of Conduct Regulations or Federal criminal and civil statutes.

VI. DELEGATION AND CERTIFICATION

On January 23, 1974, EPA issued Administrative Order 1000.10 setting forth its policy "to utilize the staff capabilities of State government agencies to the maximum extent practicable as a means of eliminating unnecessary duplicative reviews of specified documents that are a part of the wastewater treatment facility construction grant process." At the same time, it issued Order 1370.3 authorizing Regional Administrators to execute written agreements with State agencies delegating the technical and/or administrative review and certification of adequacy of plans and specifications, operation and maintenance manuals, and certain documents involved in the bid and contract process. Both Orders explicitly recognized that EPA could not delegate responsibility for actually approving the documents. Consequently, both Orders referred to a process whereby EPA would delegate the review function to the States and would expect to exercise its approval responsibilities based on the receipt of certifications of adequacy prepared and submitted by the reviewing State agency.

As of Aug. 31, 1974, formal delegations have been executed with 21 States relative to plans and specifications and with 23 States relative to operation and maintenance manuals (see Table VI-1). During 1975, pursuant to approved 1975 program plans, these delegations should increase to 38 and 40, respectively. No delegations have been made for bid and contract documents, but delegations for review of change orders have been executed with Connecticut, Vermont, and California.

Section 35.913 of the Title II regulations (issued February 6, 1974) enunciates a policy to maximize delegations and authorizes Regional Administrators to execute agreements with States to delegate the technical and/or administrative review and certification of specified documents. This provision formalizes, in regulation form, the substance of Orders 1000.10 and 1370.3, but goes beyond these Orders by authorizing delegation of any and all program functions, not just the three functions listed in Order 1370.3. This provision has the same limitation as the Orders; it does not and cannot provide for transfer of authority to the States to actually approve Grantee submittals.

The delegation policies and directives described are based on Sections 101(b) and 101(f) of PL 92-500, which express congressional intent to give the primary responsibility in water quality activities to the States, and to minimize paperwork and duplicative activities. Nothing in Title II of PL 92-500 authorizes delegating program responsibilities to the States (except for a specified role in priority setting), and nothing in Title II provides a mechanism for giving financial assistance to the States to encourage their taking on delegated functions.

The water pollution control grants under Section 106 of PL 92-500 are the only mechanisms for encouraging and financially aiding the States in assuming delegated functions. Beginning with 1974, these grants have consisted of a base grant and several incentive portions. Based on a budget of $40 million per year for 1974 and 1975, the breakdown of the annual amounts are:

1974	$ millions
Base grant (55%)	22.2
Municipal facilities (5%)	2.0
Permits (15%)	6.2
Planning & monitoring (25%)	9.6
Total	40.0

1975	
Base grant (55%)	22.2
Municipal facilities (14%)	5.6
Permits (15%)	6.0
Planning (8%)	3.2
Compliance monitoring (8%)	3.0
Total	40.0

Table VI-1

Executed Delegations of Program Functions
as of August 31, 1974

Region	Review of Plans & Specifications	Review of Operation and Maintenance Manuals
I	Connecticut	Connecticut
	Vermont	Vermont
II	New York	New York
III	Virginia	Virginia
IV	Florida	Florida
	Georgia	Georgia
	South Carolina	South Carolina
	Tennessee	Tennessee
V	—	—
VI	Arkansas	Arkansas
	New Mexico	New Mexico
	Oklahoma	Oklahoma
	Texas	Texas
VII	Kansas	Kansas
	Missouri	Missouri
		Nebraska
VIII	Colorado	Colorado
	Montana	Montana
	North Dakota	North Dakota
	South Dakota	South Dakota
	Utah	Utah
	Wyoming	Wyoming
IX	California	California
X	—	—

The following explanations apply to these breakdowns:

- For all practical purposes, municipal facilities are synonymous with the Construction Grants Program. Therefore, the incentive grant portions assigned to this function provide financial assistance to the States to cover administrative costs associated with the program.

- In addition to the incentive funds, the States use part of their base grants, plus their own funds, to cover the total cost of their municipal facilities programs.

- In 1974, appropriations were $50 million, $10 million greater than the President's budget. Of this increase, $1.3 million was distributed to cover the unanticipated and extraordinary costs of conducting the 1974 Needs Survey. The remaining $8.5 million was carried over into 1975 and recently allocated as nonincentive funds. In effect, this increases the 1975 base grant amount to $31.7 million.

- The pending 1975 appropriation bill provides for $45,625,000: $5,625,000 more than the President's budget. A final decision has not been made as of this writing as to how this increased amount will be allocated among base grants and incentives.

- The incentive portions of individual State grants are awarded on the basis of the States' demonstration of a credible program in the incentive area.

The foregoing figures demonstrate EPA's policy to encourage and support, through Sec-

tion (3b) grants, greater State involvement in the program, including their assumption of delegated functions. As a result, the States are planning to increase the proportion of their total water pollution effort devoted to municipal facilities from 10 percent in 1974 to 13 percent in 1975 (based on a review of approximately 40 approved Section 106 State program plans for 1975). This will result in the following State expenditures (State funds plus Section 3(b) grant funds) for municipal facilities activities:

	Man-years	$ millions
1974	449	11.1
1975	740	18.1

Current State Involvement

The States have been involved in the Construction Grants Program in varying degrees since its origin. Before the delegation agreements permitted under Order 1270.1, this involvement was completely informal. Current delegation agreements serve to formalize this involvement only in part. For example, many States, not yet delegated plans and specifications review, nevertheless review these documents. Also, many States are involved in postconstruction operations and maintenance activities and many are becoming involved in the various aspects of facilities planning.

It is also important to recognize that the States are involved in several functions of the program for example, review of plans and specifications because of State statutory and/or administrative requirements established independently of the program, and in some cases, before the program. In addition, certain States share the non-Federal portion of project costs. Such States perform technical and administrative review, as well as approval and grant making functions similar to those prescribed by the Title II regulations. Where these are compatible or nearly compatible with Title II functions, the delegation of Title II functions can obviously be easily achieved. In fact, the current and projected delegations described primarily derive from such marriages. In other cases, the State-performed functions are inherently different from or fall short of those required under Title II. For example, many States are reviewing the technical aspects of plans and specifications but are not reviewing for the Federal requirements, such as labor and civil rights and nonrestrictive specifications. In these cases, delegation of the function can only proceed if the State is willing to expand or modify the similar function it is currently performing.

The States plan to devote 449 man-years to the municipal facilities program in 1974 and 740 man-years in 1975. Basically, this effort is assigned to the following lines of activity:

- Developing and maintaining priority criteria and priority lists, including some collection, assembly, and analysis of the water quality data and other data required to support this activity.

- Handling the flow of material passing between the grantee and EPA and vice versa (some material moves directly between the grantee and EPA, but a large portion, particularly some of the more important documents — grant applications, facilities plans, and plans and specifications — moves through the State). As used here, this activity only includes the handling of materials: receiving, reviewing for completeness, packaging, and forwarding of materials. It does not include substantive technical or administrative review of these materials.

- Depending on the State, performing varying degrees of substantive technical and administrative review of materials, conducting inspections, and providing advice and assistance to the grantee. As used here, this activity includes performance of formally and informally delegated functions and performance of functions capable of being upgraded to support potential delegations. Any duplication or near duplication of State and EPA review and inspection efforts resides in this category.

- Depending on the State, conducting of municipal facilities activities which do not relate to or support the program but which are performed for other valid purposes. Accordingly, the category defines activities that could never support delegations.

The Section 106 program planning process does not provide for an accounting of manpower utilization in terms of the above categorization, and the Review Group was unable to determine how the State staffing in municipal facilities breaks down into the four categories above. We suspect, however, based on limited interviews with Regional and State officials, that as much as half of this staffing falls into the third category that is, 225 man-years in 1974 and 170 man-years in 1975 are involved in substantive review and inspection functions that are either formally or informally delegated, or possess some potential for being upgraded or modified (probably with additional staff) to support additional delegations. We estimate that the current and projected delegations of review of plans and specifications, operation and maintenance manuals, and change orders will consume about 30 man-years in 1976 and 65 man-years in 1976. Deducting these estimates from the foregoing figures gives a rough estimate 195 man-years in 1975 and 305 man-years in 1976 of the State manpower that could possibly be tapped for performance of delegated functions.

Prospects for Expanding Delegations

In July 1974, EPA completed a brief study of the status and success of delegations made under Orders 1000.3 and 1270.3. The study found that the delegations of plans and specifications and operation and maintenance manuals to the extent achieved and operationally implemented at the time were (1) working satisfactorily, (2) reducing duplication, (3) improving administration of the program, and (4) receiving the support of the state and Regional staff involved. The study concluded that there were additional opportunities to expand delegations but recognized these opportunities were limited by the current capabilities of the States. The study further revealed State and Regional opinions that the delegations achieved so far were largely encouraged by the incentive features of the Section 106 grants, and that further delegations would depend heavily on continuation and expansion of these features. Finally, the study revealed that delegation would not provide a near-term panacea for relieving EPA of workload or staffing requirements, because the States require time to organize and staff the actual implementation effort.

Under the current statute, there is no legal reason why virtually all functions of the program cannot be delegated (see Table VII-7). Under the current statute, however, these delegations cannot include the authority to actually award grants, make payments, or approve a variety of documents, including facilities plans, plans and specifications, operation and maintenance manual, and user charge/industrial cost recovery systems. Consequently, any and all delegation would have to depend on a certification arrangement whereby EPA would exercise its legal grant-making and approval responsibilities based on receipt of certifications of adequacy prepared and submitted by the reviewing State. Therefore, in the extreme case, where all functions would be delegated, EPA would have to maintain Regional staffs to perform these legal responsibilities and to audit or double-check, on a selective basis, the adequacy of State performance of delegated functions.

The two principal factors affecting the expansion of delegation are: (1) the States' capability to perform these functions, and (2) the need to financially support the States' assumptions of delegations. On the first point, EPA's Regional officials believe that the States, with some exceptions, would require time to develop capability to implement additional delegated functions. The overall success, both current and prospective, of delegating the review of plans and specifications and operation and maintenance manuals is the result of the fact that States have performed these functions for a long time. As a general rule, however, the States have traditionally been less involved in most of the other program functions, particularly facilities planning, the most manpower-demanding function, and, in all but a few cases, do not possess the technical and/or administrative experience and manpower to effectively perform these other functions. Accordingly, except for the above projected delegation of plans and specifications and operation and maintenance manuals and except for a few other opportunities for readily delegating other functions, future delegations will have to be based on the States' ability to develop the administrative machinery, the technical competence and the expanded staff necessary to implement new

delegations. At best, this requires time. At worst, it is inhibited or even made impossible by a number of constraints including (1) State personnel ceilings, (2) State inabilities, in some cases, to attract qualified personnel because of low pay scales and other reasons, and (3) in some cases, lack of State interest or incentive to assume new responsibilities. In short, constraints militate against significant immediate expansion of delegations, and necessarily impose time delays (1 to 3 years) on any concerted attempt by EPA to encourage expanded delegations.

Relative to the financing factor, the opinions of those interviewed in this study, the findings of the July 1974 study of delegations, and the collaborative findings of other investigations and case studies (including the Study of Control Agency Revenue Fees completed in July 1974) clearly indicate the firm attitudes of the States that EPA will have to financially support the administrative costs of any and all additional delegations. The States are plagued by the same fiscal problems as the Federal Government and find it difficult, if not impossible, to increase their water pollution control budgets sufficiently to cover inflationary costs, not to mention the assumption of new or expanded functions of the Construction Grants Program. In our opinion, this financing factor is the key to expanded delegations. If additional financial support is not provided we cannot expect the effort to succeed much beyond the delegation of review of plans and specifications and operation and maintenance manuals to approximately 40 States. If financial support is provided with reasonable assurance of continuation we can expect to gradually solve the problems discussed and gradually expand delegation of program functions over the next several years.

Here are three alternative ways of providing additional financial assistance to the States to foster and support expanded delegations:

- Implementation of the "California fee proposal"
- Increasing Section 106 grant support and allocating this increase under the municipal facilities incentive element of such grants
- Congressional enactment and implementation of some form of the Cleveland bill

These alternatives could be employed sequentially with the second supplanting the first and the third supplanting the second if this is made possible by legislative actions.

The California fee proposal is a mechanism under which a State would charge a grantee a fee for the performance of a delegated function. For example, the review of plans and specifications which EPA would allow the grantee to treat as a project cost eligible for 75 percent grant funding. Consequently, the State would be able to cover the added costs of performing the delegated functions, and Title II funds would ultimately pay for 75 percent of these costs (the grantee would provide the other 25 percent). PL 92-500 does not permit the direct use of Title II funds to cover State administrative costs, and this mechanism is the only currently available way of defraying such costs with Title II funds.

EPA published amendments to the Title II Regulations (Sections 35.917, 35.918 and 35.940-1) effective on Oct. 31, 1974, to implement this mechanism. Having originated the proposal, California is expected to be the first State to employ this fee arrangement. The extent and degree to which other States follow suit is difficult to predict. No more than six States are expected to initiate use of this mechanism within the next 12 months and will employ it only on a few functions.

The limited use of the California fee proposal derives from its basic fault of requiring a State to set up a special fee system and associated accounting mechanisms. Because of this administrative burden, and because in many cases they lack statutory authority, most States will elect not to bother with the fee proposal. From a broader point of view, the fee proposal is limited in its coverage, because fees can only be instituted to cover costs which are readily accounted for. Although accounting bases can probably be found for nearly all, if not all, functions of the program, the tendency will be to employ the proposal for only a few of the clear-cut review functions (plans and specifications, operation and maintenance manuals, facilities plans, and inspections). For this reason, we see this proposal as the least preferred and least valuable of the three alternatives and suggest that it should be used as an interim step.

The Section 106 grant funding alternative is a very straightforward approach to encouraging and supporting greater delegation through in-

centive grant funds. In fact, the incentive funds would be awarded to a State only on the precondition of accepting specified additional delegations. The shortcoming of this alternative is its lack of dependability. The recent directive by the Office of Management and Budget (which has not been rescinded) to phase out Section 106 grants leaves the States with no confidence in either the near-term or long-term dependability in this source of funds. The States would naturally be reticent to take on new or expanded delegations in the face of such instability. However, if there is reasonable expectation that the Cleveland bill or similar legislation will be enacted sometime in late FY-75, then additional Section 106 funding for FY-76 could be used as an interim financing mechanism. Under such a plan, Administration support for additional Section 106 funding would be communicated with release of the President's budget in January 1975, and this would enable the Regions and the States to move ahead with negotiating delegations for effective implementation in FY-76.

The Cleveland bill, or something similar, would authorize EPA to permit the States to directly use a part of their annual Title II allotments to cover the costs of carrying out delegated functions. It is an administratively efficient mechanism for financially supporting delegations, and it possesses the same dependability in future funding as the program itself. This bill also has the added advantage of explicitly expressing the intent of Congress to encourage delegation of functions. In our opinion, this is the preferred alternative, and we believe that it would enable the maximum degree of delegation permitted by State capabilities. Moreover, we believe that financial support initiated under either or both of the first two alternatives could be easily and readily transferred to this alternative. The only shortcoming of this alternative appears to be the time required to enact the necessary legislation. We believe it is not probable that the legislative changes could be made before FY-75, which means that implementation could not occur until late in FY-76.

The delegation issues we have discussed are integrally related to resources and operating strategies; hence recommendations concerning them are covered in Chapter VII.

VII. ALTERNATIVE OPERATING STRATEGIES

Chapters II through VI discussed the major goals of the program as it exists today: efficient program management, timely obligation of funds, maintenance of environmental quality, deterrence and detection of irregularities, and delegation of program responsibility to the States. If the recommendations made throughout these chapters are implemented, EPA would be able to administer the Construction Grants Program in a responsible manner.

We estimate that implementation of these recommendations would require an increase of 700 positions above the current staffing level of 595 - virtually an impossibility in the foreseeable future.

Consequently, in addition to summarizing the recommendations in Chapters II through VI as one option, we present three other operating strategies as alternative ways of administering the program in a responsible manner, but at lower staffing levels.

The four strategies are differentiated as follows: Strategy I is the existing program as modified by our recommendations. Strategy II assumes that the process described in Chapters II through VI will be applied by EPA personnel to larger projects but will be relaxed in selected ways in the case of projects less than $2 million. Strategies III and IV assume that the process will be applied to all projects but with more extensive delegations of functions from EPA to the States. Obviously, a great number of options could have been constructed. We feel, however, that the four strategies presented here adequately illustrate the policy choices facing the Agency.

Basis for Workforce Estimates

The resource requirements used throughout this report depend on three estimates: (1) the number of projects requiring action in each of FY 78, FY 79, and FY 77; (2) the tasks that must be performed at various stages of project development; and (3) the number of man-days required to perform the various tasks.

The number of active projects in FY 78 is derived from the 78 operating plans developed by the Regions. The 1976 and 1977 estimates are our best projections based on experience to date and on 1976 and 1977 obligation rates of $3.4 billion and $6.7 billion, respectively. Tables VII-1 and VII-2 display these estimates broken down into three categories: (1) projects continuing from previous steps; (2) new projects entering the process; and (3) new projects at an advanced stage where Federal reimbursement is being requested for work already performed. Depending on the development of a project and the point when application is made for a Federal grant, EPA performs different tasks (see Table VII-3).

To estimate man-days required to perform individual tasks, we have first relied on Regional experience which, for most tasks, dates back over much of the history of the program. For some of the newer tasks (facilities plans review and 201/H.R. tasks, for example), we have relied on limited recent experience of the Regions as well as an analysis of manpower requirements.

In all cases, these unit estimates represent average EPA manpower requirements for professional and paraprofessional talents, including required travel time, if any, but excluding clerical support and management overview, which are computed separately. Further, these estimates embrace corrections for the degree of State delegation and for the level of thoroughness and quality of performance assumed in each particular strategy. The specific assumptions on man-days per task appear in the resource analysis of each strategy.

Table VII-1

Estimated Numbers of Projects Entering the Step 1, 2, or 3 Stages During 1975, 1976, and 1977

Step	Continuing from Previous Step	Entering Step as New Project	Beginning Step Outside of Program	Total
1975				
1	--	1,300	1,930	3,230
2	500	540	790	1,830
3	100	1,160	--	1,360
1976				
1	--	1,950	950	2,900
2	1,300	600	600	2,700
3	1,100	850	--	1,950
1977				
1	--	1,300	--	1,300
2	1,950	600	350	2,900
3	1,800	500	--	2,300

Table VII-2

Estimated Numbers of Active Section 8 and Step 3 Projects Under Construction and Estimated Project Completions During 1975, 1976 and 1977

	1975	1976	1977
Active Pre P.L. 92-500 Projects Under Construction[1]	1,935	1,135	335
Active Step 1 Projects Under Construction[1]	1,740	3,900	4,550
Active Step 3 Projects Under Construction	1,300	1,300	2,600
Reaching a Point When Review of Operations and Maintenance Manual Is Required			
Active Step 3 Projects Under Construction Reaching a Point When Review of I/I / S/E System Is Required	130	650	1,625
Completion of Construction of Pre P.L. 92-500 Projects	800	800	800
Completion of Construction of Step 3 Projects	100	300	1,300

[1] These require interim inspections, review of change orders, review of personal reports

Table VII-3

Tasks To Be Performed On Projects At Different Steps

Task	Continuing from Previous Step	Entering Step as New Project	Beginning Step Outside of Program
Step 1 Project			
Conduct pre application conference		X	
Review application & award grant		X	
Review plan of study		X	X
Conduct facilities planning conference		X	X
Step 2 Project			
Review facilities plan	X	X	
Prepare EIS (on 10 percent)	X	X	
Pay Step 1 completion	X		
Review application & award original grant		X	
Review application & award grant amendment	X		
Conduct predesign conference	X	X	X
Step 3 Project			
Review facilities plan		X	
Prepare EIS		X	
Pay Step 1 and/or Step 2 completion	X		
Review application & award original grant		X	
Review application & award grant amendment	X		
Review plans & specifications	X	X	
Review bid tabulations	X	X	
Conduct preconstruction conference	X	X	
Conduct DC/ICR conference	X	X	

Strategy 1

Strategy 1 (see Table VII-4) is the current process as improved by recommendations made earlier in this report. Our recommendations would add only a modest amount of new workload to the existing process. Nearly 70 percent of the additional positions required under Strategy 1 are a function of the growing number of active projects.

New tasks now being performed would involve preconstruction, construction, and expanded final field audits to improve the stewardship of funds; a compliance assurance program, including operation and maintenance inspections, to follow through on municipal permits; and an institutionalization of preapplication, facilities planning, predesign, and preconstruction conferences to improve contact with grantees and to assist them in fully complying with program requirements.

Delegation of functions to the States is assumed to continue. Review of plans and specifications is assumed to be delegated to 50, 75, and 75 percent of the States in 1975, 1976, and 1977, respectively. Delegation of compliance monitoring tasks is assumed at 0, 33, and 60 percent of the States in 1975, 1976, and 1977, respectively. All other functions would be carried out by EPA.

Strategy 1 would provide an acceptable level of cost effectiveness through careful facilities planning; review of plans, specifications, and change orders; monitoring of construction and construction inspections; and compliance assurance (including monitoring of operation and maintenance). Adequate consideration of environmental issues is promoted through good

Table VII-4

Features of Strategy I

Pre-Step 1

- Provides for a 1-hour preapplication conference with each prospective grantee shortly after his project is placed on the priority list. Purpose is to explain the total construction grants process and the Federal requirements, to advise him on how to properly select a consulting engineer, and to work out a tentative schedule for his project.

Step 1

- Provides for a thorough review of the Step 1 application and required supplementary material.
- Provides for a review (ranging from 2 to 5 man-days) of the plan of study for facilities planning.
- Provides for one to three on-site visits to the grantee and his consulting engineer. Purpose is to explain Federal requirements and EPA's expectations on facilities plans and to otherwise assist him to assure the submission of a complete and adequate plan, including its infiltration and inflow assessment or analysis and its environmental assessment.
- Provides for a thorough review (ranging from 5 to 30 man-days) of the facilities plan, including evaluation of the environmental assessment and preparation of a good, defensible negative declaration where required (on about 90 percent of the projects).
- Provides for preparation and filing of sound and full, adequate environmental impact statements on about 10 percent of the projects.
- Provides for the thorough review of Step 1 payment requests.

Step 2

- Provides for thorough review of the Step 2 application and required supplementary documents, including commitments to develop user charge and industrial cost recovery systems.
- Provides for a one-day predesign conference with the consulting engineer to explain Federal requirements and EPA's expectations to assure complete and adequate submission of plans and specifications. Also provides for a how-to-do-it program to encourage consulting engineers to embrace value engineering in their design of plans and specifications.
- Provides for a thorough review (ranging from 7 to 19 man-days) of plans and specifications, including a complete review of the sanitary, hydraulics, and operation and maintenance features of the design; a complete review of the Federal requirements (nonrestrictive specifications, civil rights, and labor requirements, etc.); and an analysis of the estimated construction costs. It is assumed that 50, 75, and 75 per cent of this function will be performed by the States under delegations in 1975, 1976, and 1977, respectively.
- Provides for a thorough review of Step 2 payment requests.

Step 3

- Provides for a thorough review of Step 3 grant application and required supplemental material.
- Provides for a thorough 1 man-day review and analysis of construction bids, the low bid, and unit price bids particularly.
- Provides for a 1-day, on-site preconstruction conference to acquaint the consulting engineer, and particularly the resident inspector, with Federal requirements and EPA's expectations relative to proper construction and inspection.
- Provides for a 1-day, on-site visit and necessary follow up with the grantee to explain Federal requirements and EPA's expectations relative to user charge and industrial cost recovery systems to assure complete and adequate submissions.
- Provides for two, 1- to 2-day interim inspections per year on all projects under construction to assess the adequacy of resident inspection and examine the quality of construction. This will include review of records on unit price measurements, materials testing, and design changes in the interest of preventing or detecting fraud and other irregularities.
- Provides for a thorough review and analysis of all change orders, including an evaluation of their eligibility, necessity, and cost (two change orders per year on all projects under construction are assumed).
- Provides for a thorough review (averaging 5 man-days) of user charge and industrial cost recovery system submissions.
- Provides for a thorough review (ranging from 3 to 11 man-days) of operation and maintenance manuals and associated materials. It is assumed that 50, 75, and 75 percent of this function will be performed by the States under delegations in 1975, 1976, and 1977, respectively.
- Provides for a thorough 2.5 man-days final inspection, including an evaluation of the operation (or operability, if not in operation) of the facility.

TABLE VII-4 (Continued)

- Provides for the thorough review of Step 3 payment requests, assuming three requests per year on all projects under construction.

Auditing

- Provides for auditing 1 percent of active Step 1 and Step 2 projects to examine, in particular, costs incurred under consulting engineering and other contracts.
- Provides for auditing 10 percent of Step 3 projects to examine, in particular, the validity of construction costs being incurred.
- Provides for final desk audits (no site visit) on about 60 percent of completed projects.
- Provides for final field audits on about 35 percent of the projects completed.
- Provides for a comprehensive final field audit on about 5 percent of completed projects to thoroughly review the validity of all project costs.

Postcompletion

- Provides for on-site compliance assurance inspections of 45 percent of major and 30 percent of minor municipal dischargers (all municipalities including those that have not received a construction grant) where there is reason, through self-monitoring reports or other intelligence, to suspect them being out of compliance with their NPDES permit. Each action (averaging 5 man-days) includes not only the inspection and associated testing, but also the appropriate follow-up, which will range from on-site technical assistance to the collecting of evidential data to support a legal enforcement action. This function takes over the operation and maintenance inspections performed under current and previous strategies. It is assumed that the States will perform 31 and 40 percent of this function under delegations of the NPDES program in 1976 and 1977, respectively.

Other

- Provides for expanded Regional staff to improve maintenance of the grants information and control system and to improve analysis and projections of program obligations and outlays.
- Provides Regional capability to respond to Congressional and public inquiries.
- Provides for analyzing consulting engineering contract costs in the interest of preventing unjustified high costs.
- Provides for managing and supervising annual Needs Survey on the assumption that such surveys will continue.
- Provides for awarding grant amendments and making grant payments under the Section 206 (reimbursable) authority. It is assumed that this function will be completed by the end of 1976.
- Provides for Regional management of the program at the division director and branch chief levels.
- Provides for an increase in Headquarters staffing to enable improved policy direction, better and faster development of guidelines, and improved program oversight.

facilities planning and, where necessary, through the preparation of complete and incisive EIS's. Program integrity would be protected through an expanded audit program, frequent and thorough interim inspections, improved final inspections, and careful evaluations of change orders, construction bids, and the costs of consulting contracts. Finally, acceptable rates of obligation would be maintained through sufficient staff to perform the many review and administrative functions in an efficient and timely manner in preapplication, facility planning, predesign, and preconstruction conferences to enable the grantee to proceed in meeting program requirements. Staffing for Strategy 1 would require significantly more people than the 696 currently assigned to the program (see Table VII-5).

Strategy 1, however, is not an optimal program. In our view, an optimal program would include more concentrated monitoring of construction, and greater EPA involvement in the design of plans and specifications (including more emphasis on value engineering), in facilities planning, and in preparation of EIS's. The staffing would approach that of the Federal Highway Program: about 4,000 persons.

Table VII-9

Staffing Requirements of Strategy 1

	1975			1976			1977		
	No. of Actions	Mandays/ Action	Man years	No. of Actions	Mandays/ Action	Man years	No. of Actions	Mandays/ Action	Man years
Pre Stg. 1									
Pre application conference	1,000	0.5	1.0	1,000	0.5	2.0	1,000	0.5	1.7
Stag 1									
Review application & award	1,000	2.0	10.5	1,000	2.0	17.0	1,000	2.0	11.5
Review plan of study	1,000	2.1	10.5	1,000	2.1	25.6	1,000	2.1	11.9
Facilities planning conference	1,000	1.5	47.1	1,000	1.5	42.0	1,000	1.5	19.5
Review facilities plan	2,000	0.6	9.4	3,000	2.6	110.6	2,750	0.6	114.5
Prepare EIS	225	110.0	107.6	265	80.0	97.3	275	50.0	53.8
Payments	500	0.1	0.6	1,000	0.1	1.6	1,000	0.1	2.0
Clerical			22.8			23.8			23.1
			307.9			307.0			335.5
Stag 2									
Review application & award amendments	500	2.0	7.3	1,250	2.0	15.7	1,250	2.0	19.3
Review application & award original	100	1.5	0.2	(00)	1.5	0.2	(00)	1.5	4.0
Pre design conferences	1,500	1.0	8.0	2,500	1.0	11.5	2,500	1.0	10.9
Review plans & specifications	1,200	4.1	26.1	1,450	2.0	22.1	1,500	2.0	10.0
Payments	100	0.1	0.2	1,100	0.1	1.1	1,000	0.1	1.4
Clerical			4.0			4.1			4.4
			46.9			54.4			60.0
Stag 3									
Review application & award amendments	100	2.0	0.9	1,100	2.0	9.6	1,000	2.0	11.7
Review application & award original	1,100	3.5	17.2	850	3.5	13.0	500	3.5	7.6
Bid tab review	1,300	1.0	5.5	1,950	1.0	8.5	2,000	1.0	10.0
Pre construction conference	1,300	1.5	8.3	1,950	1.5	12.8	2,000	1.5	13.0
1st R R conference	1,300	3.0	11.0	1,950	3.0	17.0	2,000	3.0	30.0
Interim inspection									
Sec. 8	1,935	3.5	39.5	1,435	3.5	17.3	237	3.5	3.0
Title II	1,740	3.9	29.1	2,900	3.9	60.2	4,550	3.9	17.2
Change orders	1,675	0.6	9.6	4,011	0.6	10.6	4,781	0.6	12.5
Review 1st R R	100	3.0	4.2	400	3.0	10.0	1,041	3.0	12.8
Review O&M manual	1,300	2.2	11.5	1,300	1.5	8.5	1,000	1.5	11.5
Final inspection									
Sec. 8	600	2.0	7.0	600	2.0	7.0	500	2.0	1.5
Title II	100	2.5	1.1	300	2.5	3.3	1,300	2.5	14.2
Payments	1,675	0.9	14.4	4,011	0.9	11.6	4,781	0.9	18.5
Clerical			3.0			4.0			4.1
			181.8			330.4			368.3
Auditing									
Pre construction audits	90	13.0	2.1	150	13.0	13.0	175	13.0	21.2
Construction audits	500	30.0	31.3	600	30.0	14.0	600	30.0	41.1
Final desk audits	600	2.0	2.3	700	2.0	0.1	870	2.0	1.0
Final field audits	350	10.0	10.9	500	10.0	10.2	500	10.0	14.2
Expanded final field audits	30	19.0	4.2	60	19.0	1.0	75	19.0	6.2
Audit support & supervision			13.1			21.0			21.1
			64.1			63.9			108.3

Table VII-5 (Continued)

	1973			1978			1977		
	No. of Actions	Mandays/ Action	Man years	No. of Actions	Mandays/ Action	Man years	No. of Actions	Mandays/ Action	Man years
Post Completion									
Compliance assurance program			86.0			111.0			111.0
Other									
LOE & financial management			50.0			50.0			50.0
Inquiries & miscellaneous			15.0			15.0			15.0
A/E cost analysis						30.0			30.0
Administration of 30b grants			15.0			15.0			
Needs Survey			30.3			30.0			30.0
Library			15.0			30.0			15.0
Management			70.0			70.0			70.0
			196.0			170.0			190.0
Headquarters			77.0			77.0			77.0
Grand Total			1049.9			1,391.5			1,334.5

Strategy II

Strategy II differs from Strategy I in that many reviews and inspections are less thorough and the various conferences are eliminated for small projects (less than $3 million in construction costs). These account for about 84 percent of the projects and use about 25 percent of the grant funds. The requirements of Strategy I would be maintained for large projects. Strategy II assumes the same degree of delegation to the States for review of plans and specifications and operations and maintenance manuals as Strategy I. Table VII-6 summarizes the differences between the two strategies.

Strategy II would not be as effective as Strategy I in accomplishing the major program goals. Generally, it sacrifices achievement of cost effectiveness and stewardship of grant funds with respect to small projects by: (1) relaxing the review of plans of study, facilities plans, plans and specifications, construction bids, operation and maintenance manuals and change orders; (2) reducing the frequency of interim inspections and the thoroughness of final inspections; (3) virtually eliminating direct contact conferences; and (4) reducing compliance assurance inspections. These reductions are taken on the premise that small projects utilize only 25 percent of the grant funds and presumably

Table VII-6

Significant Differences Between Strategies I and II

Pre Step 1

- Eliminates preapplication conferences on small projects.

Step 1

- Reduces review of plans of study on small projects by one half (to 1 man day).
- Eliminates facilities planning conferences on small projects.
- Reduces review of facilities plans on small projects by one half (to 4 man days).

Step 2

- Eliminates predesign conferences on small projects.
- Reduces review of plans and specifications on small projects by one half (to 1.5 man days).

Step 3

- Eliminates preconstruction conferences on small projects.
- Reduces review of construction conferences on small projects.
- Reduces review of construction bids on small projects by three fourths (to 0.5 man day).
- Eliminates user charge/industrial cost recovery conferences on small projects.
- Reduces interim construction inspections by one half on small projects (to one inspection per year during construction).
- Reduces review of change orders on small projects by one third (to 0.4 man day per year during construction).
- Reduces review of operations and maintenance manuals on small projects by one third (to 1 man day).
- Reduces final inspections on small projects by one fourth (to 1.5 man days).

Postcompletion

- Reduces compliance assurance to cover only 30 percent of minor dischargers (but retains 85 percent of major dischargers).

Other

- Eliminates analysis of costs of consulting engineering contracts.

involve only a comparable percent of municipal waste water pollution; thus any resulting loss of cost-effectiveness or occurrence of fraud and irregularities would be confined to this sector and, hopefully, would be small.

Strategy II requires significantly fewer positions than Strategy I; but, nevertheless, 500 more than the current staffing of the program (see Table VII-7).

Strategy I is but one of the infinite number of strategies that can be constructed by varying the thoroughness and quality of performance of the many tasks. The point is that the number of positions required is directly related to the quality of performance desired. In the absence of additional personnel and the absence of an active policy encouraging greater delegation to the States, the Regions have, of necessity, reduced performance to the level dictated by staff capacity. In doing this, they have tended to sacrifice small projects before reducing efforts devoted to larger projects. In reality, the current program is similar to Strategy II.

Strategies III and IV

Strategies III and IV represent a different set of alternatives to Strategy I. Both assume increased delegation of functions or responsibilities to the States, presumably without any change or reduction in the nature or quality of performance of the functions delegated.

Strategy III encourages the delegation to the States of all program functions permissible under existing law. All substantive review and inspection functions (except final inspection) would be delegated on the premise that the States will perform reviews and inspections that meet Federal standards. When delegated reviews or inspections serve as the basis for EPA's approval action (for example, State review of grant applications leading to EPA's award of grants, or State review of facilities plans leading to EPA approval of those plans), EPA would use the States' certification of adequacy as the basis for its approval actions. Functions which, under PL 92-500, apparently cannot be delegated are:

- Actual award of Step 1, 2 and 3 grants.
- Preparation of appropriate Environmental Impact Statements (about 10 percent of the projects--same level assumed in Strategy I).
- Actual approval of grant payment requests and the issuance of vouchers to the Department of Treasury.
- Actual approval of change orders.
- Actual approval of facilities plans, plans and specifications, operation and maintenance manuals, and user charge/industrial cost recovery systems.
- Conduct of final inspections.

Our resource estimates assume that about 5, 15, and 25 States of an average mix of small, medium, and large would take on delegations in 1975, 1976, and 1977, respectively, and that this would reduce EPA's workload with respect to the delegated functions by 10, 30, and 50 percent, respectively. We believe these numbers to be liberal since the incentives may not favor the assumption of this workload by the States for reasons discussed below. For States that do not take on delegations, EPA would continue to perform all functions in the same manner and at the same level of performance as delineated in Strategy I, which assumes some delegation of the review of plans and specifications and operation and maintenance manuals under current policy. Fewer positions are required for this Strategy, and the savings increase in the future as higher levels of delegation are achieved (see Table VII-8). Nevertheless, Strategy III requires more personnel in the near term than are currently assigned to the program because of workload increases due to an increased number of projects and a more thorough performance of tasks.

It is important to recognize that the States that accept the degree of delegation required by Strategy III would have to substantially increase their administrative machinery as well as their staff, making additional financial assistance indispensable. Consequently, Strategy III includes the authority to permit the delegated States to use up 1 or 2 percent of their annual allotments to defray administrative costs. This would require a change to PL 92-500. Enactment of the "Cleveland Bill" (H.R. 10505), or something similar to it, would be necessary to make Strategy III viable. The Cleveland Bill has an additional attribute: it specifically authorizes EPA to delegate functions that not respon-

Table VII-1

Staffing Requirements of Strategy II

	1977			1978			1979		
	No. of Actions	Man-Months/ Action	Man-Years	No. of Actions	Man-Months/ Action	Man-Years	No. of Actions	Man-Months/ Action	Man-Years
Pre-Step 1									
Step 1									
Step 2									
Step 3									
Analysis									
Same as Strategy I									
Post Construction									
Compliance assurance program									
Utility									
Same as Strategy I except eliminate A/E cost analysis									
Headquarters									
Same as Strategy I									
Grand Total									

Table VII-9

Staffing Requirements of Strategy III

	1975			1976			1977		
	No. of Actions	Man-years/ Action	Man years	No. of Actions	Man-years/ Action	Man years	No. of Actions	Man-years/ Action	Man years
Pre Step 1									
Pre application counter visits	[illegible]	0.0	1.0	[illegible]	0.1	1.1	[illegible]	0.1	0.6
Step 1									
Review applications & award	[illegible]	1.0	0.0	[illegible]	1.0	15.0	[illegible]	1.0	0.1
Review plans of study	[illegible]	1.0	0.0	[illegible]	1.0	1.1	[illegible]	1.0	0.0
Facilities planning site hearings	[illegible]	1.0	0.0	[illegible]	1.0	0.1	[illegible]	1.0	0.1
Review facilities plans	[illegible]	0.0	0.1	[illegible]	1.0	0.1	[illegible]	1.0	0.1
Project EIS's	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Payments	[illegible]	0.1	0.0	[illegible]	0.1	1.0	[illegible]	0	1.1
Subtotal			[illegible]			[illegible]			[illegible]
Step 2									
Review applications & award (amendments)	[illegible]	1.0	0.0	[illegible]	1.0	11.0	[illegible]	1.0	17.0
Review applications & award (original)	[illegible]	1.1	1.0	[illegible]	1.0	1.1	[illegible]	1.1	1.0
Pre design conferences	[illegible]	0.0	0.1	[illegible]	0.1	0.1	[illegible]	0.1	0.1
Review plans & special studies	[illegible]	0.0	[illegible]	[illegible]	1.0	[illegible]	[illegible]	1.0	[illegible]
Payments	[illegible]	0.1	0.1	[illegible]	0.1	1.1	[illegible]	0.1	1.0
Subtotal			[illegible]			[illegible]			[illegible]
Step 3									
Review applications & award (amendments)	[illegible]	1.0	0.0	[illegible]	1.1	0.1	[illegible]	1.1	11.0
Review applications & award (original)	[illegible]	0.1	[illegible]	[illegible]	1.0	[illegible]	[illegible]	1.1	1.0
Bid rate reviews	[illegible]	0.0	1.0	[illegible]	0.0	0.0	[illegible]	0.0	0.0
Pre construction counter visits	[illegible]	1.0	1.1	[illegible]	1.1	1.0	[illegible]	0.0	0.0
1/0/0 R conferences	[illegible]	1.0	0.0	[illegible]	1.0	11.0	[illegible]	1.0	10.0
Interim inspections									
Section 8	[illegible]	1.1	1.0	[illegible]	1.0	1.1	[illegible]	1.0	1.1
Title II	[illegible]	1.0	0.1	[illegible]	1.0	10.0	[illegible]	1.0	0.1
Change orders	[illegible]	0.0	0.0	[illegible]	0.1	0.0	[illegible]	0.1	0.1
Review 1/0/0 R	[illegible]	0.1	0.1	[illegible]	0.0	0.0	[illegible]	1.1	1.0
Review Final manuals	[illegible]	1.1	1.1	[illegible]	1.1	0.1	[illegible]	1.1	1.1
Final inspections									
Sec 8	[illegible]	1.0	1.0	[illegible]	1.0	1.0	[illegible]	1.0	1.0
Title II	[illegible]	1.1	1.1	[illegible]	1.1	1.1	[illegible]	1.1	1.1
Payments	[illegible]	0.0	[illegible]	[illegible]	0.0	[illegible]	[illegible]	0.1	[illegible]
Subtotal			[illegible]			[illegible]			[illegible]
Auditing									
Same as Strategy I			0.1			0.1			1.0
Post Construction									
Compliance assistance program			0.0			1.1			1.0
Other									
I/R Intramural planning			1.0			1.0			1.0
Litigation and reconciliation			1.0			1.0			1.0
A/E cost analysis									
Administration of the grants			1.0			1.0			
Needs survey			0.0						
Clerical			1.1			1.1			1.0
Management			1.0			1.0			1.0
			[illegible]			[illegible]			[illegible]
Headquarters			1.1			1.1			1.0
Grand Total			[illegible]			[illegible]			[illegible]

abilities). Accordingly, the Cleveland Bill fully supports and is fully consistent with Strategy III.

The major attraction of Strategy III is that the program could be carried out presumably at the same level of adequacy as Strategy I, but with less EPA manpower, especially in future years. The adequacy, of course, depends on the performance of the States that accept the delegations, something that is difficult to forecast with accuracy.

Among the shortcomings of Strategy III is the fact that, either under PL 92-500 or the Cleveland Bill, EPA could delegate the work but not the responsibility. Two potential difficulties arise. First, if the States are going to perform virtually all of the substantive review and inspection functions which serve as the basis for approval actions, it seems logical that they should also have and, in fact, would want the delegation of the responsibilities as well. Thus, the incentives for the States to accept the work without the authority are not very strong. Secondly, Strategy III places EPA in a curious position of having to depend on the adequacy of State performance of reviews and inspections, and certifications thereof, in the discharge of its responsibilities. A certain degree of auditing of State performance and the threat of rescinding State delegations for poor performance (both after the fact) are built into Strategy III. Nevertheless, Strategy III does not allow for direct, day-to-day, control of State performance of delegated functions. Should State actions result in fraud, irregularities, poor cost effectiveness, or unacceptable rates of obligation of funds, EPA will have to share the blame without the opportunity of correcting mistakes while they are being made.

Strategy IV is essentially Strategy III with the additional delegation of the "excepted" responsibilities to the States. It would require amendments to the existing enabling legislation. Because Strategy IV delegates the total program to States willing and capable of accepting it (similar to the delegation of the NPDES program), the annual allotments of construction grant funds to the delegated States would take on the character of block grants. With the other States, EPA would manage and be responsible for individual municipal grants in the same manner as is now the case. The States with full delegation would assume the responsibility of actually awarding grants to individual municipalities as well as the associated responsibilities of fund-raising (cash-flowing) and other grants management functions. EPA would be fully relieved of all direct grant-related responsibilities with respect to individual municipal grantees and would only maintain cognizance over the "block grants" to the delegated States. This means that EPA's program involvement with respect to delegated programs would consist of periodic evaluations and audits of State performance, activities requiring only a few personnel. The detection of poor performance would be cause for rescinding delegations. Unlike Strategy III, under which EPA could delegate or reassume responsibility for individual functions, under Strategy IV responsibility for the program would be delegated or reassumed as a whole.

We estimate that Strategy IV would be as effective in achieving program goals as Strategy III. Both depend heavily on the quality of State performance, although EPA would have less influence on that performance under Strategy IV. Our experience with the delegation of the NPDES program, in overall terms, does not support great optimism, but the Construction Grants Program is considerably different. It is nonregulatory, involves municipalities as against industries, and has existed long enough to develop considerable administrative know-how.

Resource estimates (see Table VII-9) assume that due to the need for legislative authority, implementation of Strategy IV could not begin until January 1976. It is further assumed that Strategy IV would be implemented as a continuation of Strategy III. Therefore, the estimates reflect the assumption that the 15 States accepting Strategy III delegations would accept Strategy IV delegations in the second half of the fiscal year, and that in FY 77 28 States, instead of accepting Strategy III delegations, would accept Strategy IV delegations.

Discussion and Recommendation

The fundamental point of the analysis so far is that it is not possible to creditably administer the Construction Grants Program within the current staffing level. The basic reason is the substantial increase in the estimated number of projects to be managed (see Table VII-10). All types of projects, except pre-PL 92-500 projects, increase by amounts ranging from 30 to 1,100

Table VII-9

Staffing Requirements of Strategy IV

	1975			1976			1977		
	No. of Actions	Mandays/ Action	Man years	No. of Actions	Mandays/ Action	Man years	No. of Actions	Mandays/ Action	Man years
Pre Step 1									
Pre application conferences	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Step 1									
Review applications & award	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Review plans of study	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Facilities planning conferences	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Review facilities plans	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Prepare EIR's	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Payments	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clerical			[illegible]			[illegible]			[illegible]
			[illegible]			[illegible]			[illegible]
Step 2									
Review applications & award amendments	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Review applications & award original	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pre design conferences	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Review plans & specifications	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Payments	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clerical			[illegible]			[illegible]			[illegible]
			[illegible]			[illegible]			[illegible]
Step 3									
Review applications & award amendments	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Review applications & award original	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bid tab reviews	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pre construction conferences	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
I/C/H/R conferences	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Interim inspections									
Section 8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Title II	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Change orders	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Review I/C/H/R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Review O&M manuals	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Final inspections									
Section 8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Title II	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE VII-9 (Continued)

	No. of Actions	Mandays/ Action	Man years	No. of Actions	Mandays/ Action	Man years	No. of Actions	Mandays/ Action	Man years
Payments	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clerical			[illegible]			[illegible]			[illegible]
			[illegible]			[illegible]			[illegible]
Auditing									
Pre construction audits	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Construction audits	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Final desk audits	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Final field audits	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Expanded final field audits	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Audit support & supervision			[illegible]			[illegible]			[illegible]
			[illegible]			[illegible]			[illegible]
Pre Construction									
Compliance assurance program			[illegible]			[illegible]			[illegible]
Other									
Same as Strategy III			[illegible]			[illegible]			[illegible]
Headquarters			[illegible]			[illegible]			[illegible]
Grand Total			[illegible]			[illegible]			[illegible]

Table VII-10

Estimated Number of Projects in Process at End of FY 1974-77

Types of Projects in Process	1974	1975	1976	1977
Step 1 projects	[illegible]	[illegible]	[illegible]	[illegible]
Step 2 projects	[illegible]	[illegible]	[illegible]	[illegible]
Step 3 projects in pre-construction phase	[illegible]	[illegible]	[illegible]	[illegible]
Step 3 projects in construction phase	[illegible]	[illegible]	[illegible]	[illegible]
Section 8 projects in construction phase	[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]
Percentage increase of total over 1974		[illegible]	[illegible]	[illegible]

percent between 1974 and 1975 and from 1611 to 2,250 percent between 1974 and 1977. The total number of projects in process increase by 46 percent between 1974 and 1975 and by 111 percent between 1974 and 1977. These percentage increases of total projects, however, understate the associated increase in workload because processing of Step 1, and Step 2 and Step 3 preconstruction projects, require significantly more manpower, than those of Step 3 and Section 8 projects now under construction.

Secondary causes of the increased staffing required by the several strategies are (1) expanded Federal requirements and (2) improved performance of many of the functions of the program. Included in the first category are the review of plans of study for facilities plans, and review and approval of facilities plans themselves. Pursuant to EPA regulations, facilities plans (and thus the attendant tasks) will be required for planning started after April 30, 1974. User charge/industrial cost recovery begin to require staff time in 1975 and subsequent years. Similarly, the compliance assurance program is assumed to start in 1976. However, operation and maintenance inspections, a part of this program, are carried out in 1975 at levels of staffing much lower than those estimated for the compliance assurance program.

To improve the quality of performance, all of the strategies assume institutionalizing and expanding direct contact with the grantees through preapplication, facilities planning, predesign, preconstruction, and I/I/I R conferences. In addition, all strategies except II assume a more thorough performance of all functions than at present, adding to staffing requirements.

Table VII-11 identifies the man-years required under Strategy I attributable to various purposes, including all tasks for which performance is modified during 1975-1977. Increases in workload account for approximately 70 percent of the staffing increases. Similar analyses of the other strategies yield similar results. Projected increases in staffing requirements result principally from projected increases in workload.

Obviously, the Review Group prefers Strategy I, it would provide for an adequate and acceptable performance of the program, without extensive EPA dependence on the States. How-

Table VII-11

Analysis of Staffing Requirement Increases of Strategy I

	1974	1975	1976	1977
Current staffing level	595	595	595	595
Increase necessary to initially accommodate (in 1974) new requirements and upgrade performance to Strategy I levels	+138	+138	+138	+138
Increase necessary to initiate the compliance assurance program			+143	+116
Increase resulting from achieving greater efficiency in the preparation of Environmental Impact statements			60	60
Increase resulting from increasing delegation of review of plans and specifications and operations and maintenance manuals to the States			13	13
Increase for A/E cost analysis			+30	+30
Increase resulting from completing the processing of 208 reimbursable projects			13	15
Increase resulting from increased workload		117	413	489
Total	733	1050	1,393	1,397

ever, if the positions required for Strategy I are not attainable, we recommend a combination of Strategies III and IV.

We have the least preference for Strategy II because it involves less than adequate performance and risks poor results insofar as cost effectiveness, stewardship, and environmental integrity are concerned. We recognize that poor State performance could result under Strategies III or IV as well, although we do not believe that this is likely to happen, at least on a large scale. Furthermore, while Strategy II requires fewer people in FY 75 than either Strategy III or IV, the reverse is true in later years. In FY 77, Strategy IV would mean significant personnel savings over Strategy II.

Movement toward Strategy III and, eventually, Strategy IV will require an immediate, well-enunciated shift in Agency policy, as well as changes to PL 92-500. A number of problems may be encountered in implementing our recommendation. First, the Review Group generally found considerable misgiving in the Regions about delegating more functions to the States. They genuinely feel that the States (with some exceptions) lack the interest or capability -- or both -- to perform additional delegated functions in a creditable manner. Consequently, the policy changes required by Strategy III will require firm and explicit guidance to the Regions to overcome the built in "inertia" in the Regions against such changes.

Second, Strategy III virtually depends on enactment of the Cleveland Bill or something similar to it. Although we could begin moving toward Strategy III under current authorities, the Cleveland Bill provides two important features which would vastly further this approach. It would make Congressional authorization for delegating functions to the States explicit; more importantly, it would authorize those States accepting delegations to use a portion of their annual allotments to cover the resulting administrative costs. We believe that many States (California, as an example, which are interested in Strategy III would decline involvement unless the Federal Government helped to defray the States' additional administrative costs.

The two alternatives to the Cleveland Bill are the "California fee proposal" and use of Section 106 grant funds, both of which we favor less than the Cleveland Bill. Although the California fee proposal (currently being implemented) is an adequate interim measure, it is administratively complex, and is neither designed nor intended to cover all of the functions that Strategy III assumes will be delegated. Under the proposal, States charge the grantee a fee for certain functions; he is then reimbursed under existing regulations. Both methods make Title II funds available, but the Cleveland Bill is more efficient, direct, and flexible. Section 106 grant funds would be an adequate alternative if their continuation were assured. Because of the potential phase-out of these grants and because current funding levels ($40 million) could not accommodate the additional costs of Strategy III, we believe that the Agency cannot rely on them.

Third, the Review Group recognizes that Strategy III will require considerable effort, if experience with the NPDES program is any guide. Negotiating delegation agreements with the States will probably be easier than implementing them. Consequently, EPA's effort to implement Strategy III may fall behind.

Although Strategy III appears attractive for the near term, we do not find it so for the long term. We do not like its inherent feature of delegating all of the functions and workload but none of the responsibility. From a standpoint of sound administrative principles, we feel the separation of functions and responsibilities cannot and should not survive permanently. Accordingly, we favor the eventual move to Strategy IV the transfer of both the function and the responsibilities to the States -- if staffing constraints force the Agency to take the delegation approach.

While it reduces the need for EPA manpower, Strategy IV is risky because it does not assure adequate State performance. We are not able to quantify this risk-benefit relationship, although we have considerable confidence that the States are as capable as EPA of achieving the goals of the program if they are given both the clear authority to manage the program and sufficient resources to carry it out.

Strategy IV requires more extensive changes to PL 92-500 than the Cleveland Bill; these changes must authorize not only the delegation of the responsibilities, but literally the entire program. The basic change in the nature of the program suggested here argues for our Strategy III plus Strategy IV approach. The Cleveland Bill

and Strategy III would support a move toward Strategy IV but would also serve as the basis for testing the delegation approach. Moreover, the Cleveland Bill and our support of it could be used to set the legislative ground work for the subsequent and more substantive statutory changes required for Strategy IV.

VIII MANAGEMENT AND ORGANIZATION

The early chapters of this report consider the major subgoals of the Construction Grants Program, identify problems, and recommend possible solutions. Chapter VII integrates these solutions into alternatives that the Review Group considers adequate for pursuing the program's goals.

Implicit in the recommendations so far is the need for efficient organization and effective management. The recommended additional manpower by itself will not yield the estimated improvements unless applied to critical elements of the program and with minimum duplication of effort. The Agency's strategy must be clearly stated; accountability should be clearly established and commensurate with responsibility assigned; authoritative standards, regulations, and guidance should be available on a timely basis to those responsible for implementing them; realistic operational goals should be established along with adequate reporting and evaluating mechanisms.

Current Organization

The Construction Grants Program conforms to the Agency's system of decentralization. Headquarters staff is expected to provide policy and procedural guidance and to monitor performance. Program operations are the responsibility of the Regional Administrators, who report to the Administrator and the Deputy Administrator.

Headquarters responsibilities are divided among program and functional offices dealing with policies and services that cut across program lines. The program manager for the Agency's water programs is the Assistant Administrator for Water and Hazardous Materials (AA/OWHM).

Within the Office of Water and Hazardous Materials (OWHM), the bulk of the Agency's activities concerning the Construction Grants Program has been delegated to the Deputy Assistant Administrator for Water Program Operations.[1] This office is to:

- Provide national guidance for the design and construction of municipal waste water treatment facilities.
- Coordinate Headquarters and Regional plans for the Construction Grants Program.
- Develop and disseminate NPDES policy as it applies to publicly owned treatment works.
- Develop guidance for O&M programs which are coordinated with NPDES and the Construction Grants Program.
- Administer training programs for operating personnel.

The Deputy Assistant Administrator for Water Planning and Standards, who is responsible to the AA/OWHM for developing the Agency's strategy for water pollution abatement, directs activities which impact directly on the Construction Grants Program. This office:

- Develops water quality criteria.
- Oversees development of State strategies and State priority lists.
- Issues guidelines and criteria for assessing the cost effectiveness of project alternatives.

[1] He is also responsible for a variety of other functions including programs related to oil and hazardous materials spills, the control of pollution from Federal facilities, and the development of standards for water supply systems and covers

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- Provides guidance and regulations for all water quality planning programs, including areawide, basin, and facility planning.

- Administers the program grants (Section 106) for State and interstate water quality planning and control agencies.

A number of Headquarters functional offices have Agency-wide responsibilities that impact on the Construction Grants Program, including the following:

- Office of the Administrator (policy on Environmental Impact Statements).

- Assistant Administrator for Planning and Management (program policy and budget formulation; organization, management, and personnel practices; grants administration; labor standards, civil rights compliance, program evaluations, financial management and audits).

- Assistant Administrator for Enforcement and General Counsel (legal counsel, enforcement policies).

- Assistant Administrator for Research and Development (basic and applied research, demonstration programs).

The Regional Offices have responsibility for conducting the Construction Grants Program within the policy and procedural guidance received from Headquarters. The offices must integrate the requirements of the program into Regional priorities and resource constraints, and have the authority to deal directly and conclusively with grant applicants and State agencies. The Regional Offices:

- Interpret Agency policy, guidance, and procedures for the States, localities, and consultants.

- Review grant applications, amendments, planning products, and other submissions for adequacy and conformance with administrative requirements.

- Make grant awards and payments.

- Conduct environmental reviews and, as necessary, prepare Environmental Impact Statements.

- Monitor and report on project status.

- Negotiate State control agency program grants and determine the readiness of State agencies to assume delegated EPA responsibilities.

These activities, under the recently issued Order No. 1110.19A, are to be carried out largely under the Water Division with necessary support from other offices in the Regions.

Current Problems

Although some improvements have been noted we recognize that the Agency is not doing an adequate job of managing the Construction Grants Program. Some of the weaknesses in program management relate to factors not entirely within the control of Agency management. These factors have been mentioned in earlier chapters but bear repetition:

- The program has expanded rapidly, with nearly a 13-fold increase in annual obligations between 1968 and 1978, while Federal program staffing has been doubled.

- The basic structure of the program as defined in enabling legislation inhibits "efficient" Federal program management. Federal grants support projects which are designed, built, and operated by State or local agencies without direct program management by either Federal or State agencies.

- Under the 1972 Amendments the program has become more complex, requiring analysis and program planning of a type not done extensively before by the grantees or their consultants.

- Finally, there have been significant changes in the Agency itself since its inception in 1970, including a decentralization of responsibilities to the Regions and a high turnover of key personnel.

These factors increase the importance of pressing for improvement in program management requiring changes in attitude, resources, structure and procedures. Accountability need not only be established, but also monitored.

One of the most notable yet difficult problems is that of an attitude of independence and separateness. Other aspects of management problems are discussed below: (1) delays in providing guidance, (2) confusion over responsibilities, and (3) uneven implementation of requirements.

Delays in Providing Guidance. The Agency has not issued regulations and guidelines on construction grants in a timely manner. Without exception, they were issued later than the dates specified in law, or the dates required for a smooth transition to the new program. Table VIII-1 provides a summary of the Agency's record for selected regulations and guidelines.

TABLE VIII-1

Delays in Issuance of Selected Regulations

Regulation/ Guideline	Responsible Unit[1]	Statutory Time Period	Time Period for Interim/Proposed Publication	Time for Final Publication
Title II Regulations	OWPO OWPO MCD OPM OA GAD OEGC OGC OGC/ADI		111 days	481 days
Secondary Treatment Regulations	OWPM OWPO MCD	60 days	104 days	303 days
Project Priority Criteria	OWPM OWPO WPD		301 (1/4/80) Memo 154 (Dec. 19) Reg I	
Discharge/ Industrial Cost Recovery Reg	OWPM OWPO MCD	180 days	216 days	307 days
Facility Planning Guidelines	OWPM OWPO WPD			454 days
BPWTT[2] Guidelines	OWPM OWPO MCD	270 days	513 days	

[1] OWPM — Office of Water and Hazardous Materials
OWPO — Office of Water Program Operations
MCD — Municipal Construction Division
OPM — Office of Planning and Management
OA — Office of Audit
GAD — Grants Administration Division
OEGC — Office of Enforcement and General Counsel
OGC — Office of General Counsel
OGC/ADI — General Counsel, Grants Administration Division
OWPD — Office of Water Planning and Standards
WPD — Water Planning Division

[2] Best practicable waste treatment technology

In addition, the Agency appears slow or unresponsive in replying to queries regarding the interpretation of these regulations and guidelines, or their possible revision. In a recent example, Region II asked Headquarters for guidance on how population growth should be addressed in developing the Environmental Impact Statement for a project. After waiting 6 months for a reply, the Region made its own decision. As a second example, in January 1974 Region IX requested the approval of a "construction grant fee" which would allow State agencies to recover certain costs of administering the Construction Grants Program. A response in the form of an amendment to the regulations was published September 24, 1974.

The responsiveness of the Regional Offices to requests by the States or grantees for guidance is also generally inadequate, but the nature of the problem varies from one Region to another. Management problems identified include:

- Difficulty of handling problems such as local procurement systems, value engineering, municipal finance and cost analysis.
- Weak project relationships (Project Officer idea not well carried out).
- Inadequate use of management information systems such as Grants Information Control System for program management.
- Inadequate financial forecasting.

Confusion Over Responsibilities. Policy and procedural guidance are issued by many Headquarters units. As Table VIII-3 illustrates, not only are directives regarding program elements issued by more than one office, but also by more than one level within an office. The handling of facilities planning guidance is an example of how divided responsibility presents problems. In this case the Deputy Assistant Administrator for Water Program Operations and the Deputy Assistant Administrator for Water Planning and Standards, each operating within his perceived areas of responsibility, drafted competing versions of the *Facilities Planning Guidance*. Since promulgation of the resulting guidance, they have continued to issue conflicting interpretations and to emphasize different aspects of the guidance.

Uneven Implementation of Requirements. Different Regions emphasize different aspects of the Construction Grants Program. This is primarily due to the varying situations faced by individual Regions, but it is made more extreme by the limited manpower available, by the lack of procedural guidelines and norms, and by the lack of Headquarters assistance on adequate performance. Numerous examples of this problem have been cited in earlier chapters (for example, criteria for approving environmental assessments, procedures for reviewing Step 2 plans and specifications, and programs for monitoring construction programs).

Another example is the variations given to the development and utilization of "management information." There are wide variations among the Regions and at Headquarters with regard to the flow of construction grant information to management personnel. Although a Grants Information Control System (GICS) has recently been implemented, we note inconsistencies among the Regions in the input prepared for this system and in the use of the system for program management.

Constraints

In choosing among alternative ways to improve the management and organization of the Construction Grants Program, the Agency is faced with a series of constraints, including 1) the recent Agency-wide reorganization of program responsibilities, 2) the Agency's policy of decentralization, 3) the problems inherent in giving too much autonomy to a national program manager, and 4) the limits on what can be bought with formal delineations of organization, requirements, and guidelines.

Recent Reorganization. A reorganization of EPA's Headquarters was completed in April 1974. Regional reorganization is to be completed by early 1975. As reorganizations tend to affect morale, create uncertainty, and cause program delays in the near term, further reorganization should not be undertaken without great reasons.

Decentralization. In line with the Administration's policy of New Federalism, the Agency has decentralized responsibility and authority to the Regional Offices. Each Regional Administrator is free to organize his personnel in a manner suited to the Region's particular prob-

TABLE VIII-2

REGIONAL REPLIES TO A REQUEST TO IDENTIFY SOURCES OF HEADQUARTERS DIRECTIVES

	State priority list development	Application development & processing	Construction progress monitoring	Operations & maintenance
	(Number of regions identifying sources of directives)			
Administrator	6	6	6	6
Deputy Administrator	6	6	6	6
Staff Offices	6	6	6	6
AA for Air and Water Programs	6	6	6	6
DAA for Water Plan. & Stds.	6	6		
Dir. Water Planning Div.	6	6		
DAA for Water Program Oprs.	6	6	6	6
Dir. Municipal W.W. Systems Div.	6	6	6	6
AA for Planning & Management	6	6	6	
Office of Audit		6	6	
DAA for Administration		6	6	
Dir. Grants Admin. Div.	6	6	6	
Dir. Mgt. & Org. Div.		6	6	
DAA for Resources Management		6	6	
Dir. Budget Operations Div.		6	6	
Dir. Financial Mgt. Div.		6	6	
AA for Enforcement & General Counsel	6	6	6	6
Deputy General Counsel				
Dir. Grants & General Admin. Div.		6		6
DAA for Water Enforcement				6
Dir. Permit Programs Div.				6

lems, workload, and capabilities. Although there are advantages in imposing an organization on the Regions that mirrors the Headquarters structure to the Division level, the Review group has concluded that this is neither desirable nor feasible.

Program Autonomy. The Construction Grants Program is becoming one of the largest public works program in the United States; its obligations in FY 75 will be several times the rest of EPA's budget. The program has a widespread clientele among the States and localities and a powerful constituency in Congress. The pressures on the program are to obligate funds expeditiously, to the potential detriment of orderly consideration of environmental concerns. Given these factors, the appropriate management and organizational framework for the program seeks to balance the need for sufficient autonomy against the need to provide ways for the Agency's functional offices to constructively influence formulation and execution of policy.

Management versus Organization Solutions. There is a distinction between "organization" and "management." The former term relates to the formal structure of an agency and involves the delineation of chains of command and the assignment of responsibility to organizational elements. "Management" relates to actions that a responsible official takes to implement policy, create appropriate working conditions and incentives, and ensure that those responsible to him exercise their responsibilities in an adequate and appropriate manner. Not all administrative problems are subject to organiza-

tional solutions; improved management practices are often more appropriate.

Alternatives—Headquarters

We have chosen to discuss improvements in organization and management at the Headquarters level separately from those at the Regional level. While this choice limits the scope of alternatives that might be examined, we believe it is consistent with the Agency's policy of decentralization.

The Review Group has discussed a number of possible changes to the management and organization of the Construction Grants Program at Headquarters. Six major options are:

Option 1 — Management enhancements

Option 2 — Limited reorganization

Option 3 — Major reorganization

The following discussion assumes that the Agency rapidly organizes procedural guidance into manuals, as described in Chapter IX. The arguments for and against an option are considered to hold regardless of the overall strategy chosen.

Option 1 — Management Enhancements. The Management Enhancement Option is based on the rationale that the existing organizational structure is acceptable and that program performance can be brought to an adequate level through management action. The Administrator or Deputy Administrator would reaffirm the fact that the Assistant Administrator for Water and Hazardous Materials is the "program manager" of the construction grants program and, as such, has primary responsibility for its management. The AA/OWHM, or his delegates, would in turn move rapidly to:

- Assume clear responsibility for the timely promulgation of necessary guidance packages (see Chapter IX).

- Clearly designate responsibilities within his office, particularly in regard to the interpretation of facilities planning guidance, and establish procedures to ensure that these responsibilities are exercised in an adequate manner.

- Negotiate clear agreements with the "functional" offices in areas of overlapping responsibilities, particularly to control of requests for interpretation or amendment of current guidance, to approval of deviations from current guidance, and to control of the content of the GPCS data files.

- Work with the Regional offices to: (1) develop useful guidelines for Regional activities, (2) minimize the inefficient utilization of personnel, (3) develop meaningful measures of program performance, and (4) designate the offices or individuals to receive directives regarding aspects of the Construction Grants Program.

Advantages:

- If pursued vigorously by Agency management, is capable of eliminating most of the problems discussed above.

- Avoids another reorganization, with its attendant uncertainties and program delays.

- Represents an effort to work within the Agency's policies of decentralization and limited program autonomy.

Disadvantages:

- If selected, but not pursued vigorously by management, will have little impact.

- While the responsibility of the program manager is clearly reaffirmed, the Assistant Administrator for Water and Hazardous Materials may not devote time to make it work, in view of his other areas of responsibility.

Option 2 — Limited Reorganization. The Limited Reorganization Option is based on the rationale that other responsibilities of the AA/OWHM prevent him from devoting the time necessary to effectively manage the Construction Grants Program. The reorganization that

emplated in this option would be restricted to offices already within OWEM. The DAA for Water Program Operations would be renamed the DAA for Municipal Waste Treatment Systems, and formally designated as the "program manager" of the Construction Grants Program. He would be relieved of responsibility for unrelated activities (the oil and hazardous materials and the water supply programs) so that he could focus his attention on the Construction Grants Program. The only recommended shift of responsibilities from other parts of OWEM to his office would be those related to facilities planning; however, his designation as program manager would give him an increased say in a number of related areas (for example, priority list development). His relationship with those outside OWEM, in the Agency's functional and Regional offices, would be those described for the AA/OWEM under Option 1.

Advantages:

- Vests increased accountability in a DAA with no other responsibilities; a DAA has the stature commensurate with responsibility for a key Agency program.
- Possibly minimizes the problems associated with reorganization.
- Eliminates the current uncertainty over who is responsible for facilities planning, the organizational problem most often noted by Regional personnel.

Disadvantages:

- Under pressure to obligate funds rapidly, approval of projects for construction may receive greater HQ emphasis, at the expense of review of alternatives and environmental considerations now a part of the facilities planning process.
- Generally increases the burden on HQ functional offices to exercise their responsibility to influence program policy decisions.

Option 3 Major Reorganization. The Major Reorganization Option is based on the rational that the Construction Grants Program would be run more effectively and efficiently if one office were clearly responsible for the overall performance of the program. In addition to the organizational realignments described in Option 2, selected operational responsibilities carried out by HQ functional offices would be transferred to a new DAA for Municipal Waste Treatment Systems. Operational grants policy, granting of deviations, and CICS would be transferred from Grants Administration, and priority list criteria from Water Planning and Standards.

A new Office of Municipal Waste Treatment Systems would be reorganized into five Divisions with these responsibilities:

- *Facilities Planning Division.* Review of the State priority list and all phases of Step 1, including Environmental Impact Statements.
- *Construction Engineering Division.* Steps 2 and 3 - that is, design and construction of completed systems.
- *Compliance Assurance Division.* All post construction functions that is, operator training, compliance assurance, O/M/R compliance, and technical assistance.
- *Enforcement Division.* Municipal permits and enforcement actions.
- *Administration Division.* Grants administration and variances, CICS, program management systems, financial management and control, program planning and evaluation, and coordination with the Office of Resources Management.

Advantages:

- Increases program accountability.
- Greatest long-term opportunity for reducing HQ delays in issuing program guidance.
- Greatest long-term opportunity for expediting the planning, design, and construction of waste treatment works.

Disadvantages:

- Greatest risk of emphasizing facility construction at the expense of water quality improvements and environmental considerations.
- Greatest risk of emphasizing construction grants at the expense of other Regional water programs.
- Greatest risk of overreliance on reorganization as a substitute for improvements in basic management practices.
- Inevitable confusion and delay during the transition period.
- New problems of coordination with other Headquarters offices. Functional offices would seek to retain some influence on program policy determination.

We recommend that Option II be implemented.

Principles of Management and Organization - Regions

We have already pointed out that each Region has its own way of organizing for and managing the Construction Grants Program. We believe, given the Agency's policy of decentralization, that this is likely to remain the case even after the recent order creating a Water Division, Order No. 1110.10A, has been implemented in each Regional office. Furthermore, the choice of overall strategies will have greater impact in the Regions than in Headquarters; the Review Group has not been able to fully analyze all the organizational implications of such strategies.

Therefore, we have chosen not to formulate a series of options for Regional reorganization. Instead, we would like to propose three principles of management and organization and urge their consideration and adoption by the Regional Administrators. These principles are (1) increased State orientation, (2) authority commensurate with responsibilities, and (3) improved utilization of available resources.

Increased State Orientation. One of the Review Group's major conclusions is that increased contact with States, beginning early in the grants process, will not only improve the quality of State and local submissions but will also reduce Federal administrative delays. We believe this increased contact can best be achieved if each Regional office forms State teams composed of individuals from all functional areas of the Construction Grants Program: facilities planning, construction engineering, permits, compliance assurance, and grants administration. These teams could operate as elements (for example, sections within each new Regional Water Division) or as designated individuals located within functionally organized units, but responsible to a senior team member for all projects within a State.

Most Regions now assign responsibility for projects during the grant period to a specific individual. Region IV has a separate water program organization for each State Region X places EPA employees in State pollution control agencies. The choice of organizational structure depends on a Region's staffing levels and capabilities and on its relations with the States. What is important is that a State agency, or a grantee, is able to identify its primary contact within the Region, and does not have to deal with several different desks.

Authority Commensurate with Responsibility. Once a State team is formed, it is important that the team leader be given adequate grant approval authority. Under his direction, the State team is responsible for both facilitating approval and for ensuring quality of all functions handled. The team should assist in project development, review project submissions, and recommend award action to the Regional Administrator. If, as is often the case, one individual or group works with a State/grantee to develop a project only to have it rejected or blocked by another office, EPA/State relations will be impaired.

Improved Utilization of Available Resources. No two Regions place the same emphasis on all elements of the construction grants process. The reasons are both external to the Regional office (for example, water quality problems, existing stock of treatment facilities, and State capabilities) and internal (for example, resource constraints, staff capabilities, inertia, and management preference). We believe that a

large portion of these differences in emphasis, especially those related to external factors are valid and necessary. However, earlier in this report we have discussed numbers of program areas where greater or lesser emphasis would make sense in most Regions (for example, pre-application conferences versus reviews for restrictive specifications). Chapter IX recommends that procedural guidelines and norms in these areas be organized into manuals. We urge the Regions become involved in development of these guidelines.

A major underutilized resource is the program management information potentially available from [illegible]. The Regions should be given resources necessary to make the transition from existing program management systems to [illegible]. Further study will be needed to determine if [illegible] will require additional resources once the transaction is completed.

IX. PROCEDURAL GUIDANCE

Pollution control agencies at all levels of government must fulfill their assigned roles if the Construction Grants Program is to function effectively. To fulfill their roles, however the agencies must clearly understand not only what functions they are required to perform, but the procedures governing their activities. Unfortunately, an adequate understanding of the procedural requirements does not exist for all elements of the program.

This Chapter addresses problems related to program procedures and offers recommendations for the correction of the deficiencies identified. Emphasis is placed on the need for procedural guidance and the means by which such guidance is organized for dissemination to the different levels of government.

Need for Procedural Guidance

The Title II Regulations provide the basic working rules for local and State governments.[1] These regulations list the main items that local applicants must prepare and submit for grant approval, the most important procedures the States must follow in certifying projects to EPA, and basic requirements placed upon EPA in its administration of the Construction Grants Program.

Supplementary regulations and guidelines support and amplify the Title II Regulations in defining the governmental roles, but they have been issued at sporadic intervals in a piecemeal fashion. Because of the procedural gaps, deficiencies in communication, and the inherent complexity of the issues involved, the agencies have been uncertain of their responsibilities. The resultant delays and other problems have seriously reduced the effectiveness of the program.

The Review Group has identified many examples of how the lack of adequate procedural guidance has adversely affected the program. The examples may be grouped into two problem areas: (1) contradictory or inconsistent practices and policies and (2) utilization of outdated guidance. These problems, in turn, result in indirect adverse effects which make it difficult to assess program performance, procedural effectiveness, and the use of resources.

Contradictory or Inconsistent Practices and Policies. Individual Regional offices as well as State and local agencies, have applied construction grant policies and practices that contradict or are inconsistent with those applied by their counterparts in other locations. Examples include:

- One Region approved project priority criteria which, in effect, constituted "readiness to proceed," other Regions disallowed such criteria.

- Most Regions work actively with the States to conduct preapplication conferences for all prospective applicants. Two Regions, however, conduct such meetings only 10 to 15 percent of their applicants upon request.

- One Region has made a practice of executing grant agreements for Step 1 projects before reviewing the plans and specifications. This is not consistent with what the other Regions do.

- Most States held public hearings on their FY 74 priority criteria and project lists. One Region, however, granted waivers for

[1] Title II Regulations were published on Feb. 11, 1974, as Subpart E, "Grants for Construction of Treatment Works," Federal Water Pollution Control Act Amendments of 1972.

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such hearings to all States within its jurisdiction.

- Many grantees depart substantially from acceptable accounting, procurement, and project management practices.

- All Regions conduct bid tabulation reviews; however, the comprehensiveness of the reviews varies substantially from Region to Region.

- Five Regions conducted construction inspections during FY '74; the other five did not.

- Three States have been delegated the responsibility for change orders; the others have not.

The contradictions and conflicts have resulted in considerable confusion and uncertainty among the grantees as well as the State and Federal program managers. Regional members of the Review Group stress the urgent need for procedural guidance.

Utilization of Outdated Guidance. In the absence of up-to-date guidance, Regional Offices are using guidance developed prior to enactment of the 1972 Amendments. Examples include:

- The general grant regulations in effect prior to issuance of the Title II Regulations required review and approval of grantee contracts by EPA. No such requirement is contained in the Title II Regulations, nor has guidance for implementation under the 1972 Amendments been transmitted to the Regional Offices. As a result, each Regional Office reviews contracts essentially in conformance with outdated policies established in 1969.

- Regional Offices use to varying degrees the publication *Federal Guidelines: Design, Operation and Maintenance of Wastewater Treatment Facilities*, issued in 1974, in the review of Step 1 grant applications. Even though two publications have updated sections of this report, many outdated sections remain in use.

The lack of up-to-date guidance has, like conflicting and inconsistent practices and policies, resulted in considerable confusion and uncertainty. Thus, it is not currently possible to assess EPA's performance in meeting (1) its assistance, review, approval, and project monitoring responsibilities or (2) its program goals. Primarily, this is because performance norms cannot be meaningfully established and quantified given the existing meager data base. The meager data base, in turn, cannot be improved until procedures for all program activities have been specifically delineated. The first task, therefore, in providing for an assessment of program performance is to establish detailed procedures on a task-by-task basis. In order that Regional performance might be established on a relative or comparative basis, the procedures would have to be uniformly applied across the Nation.

Procedural Effectiveness and Resource Use. At a lower level of assessment, no tests of procedural effectiveness have been applied to determine whether the expenditures of personnel and financial resources devoted to program elements have been fully justified. Again, an adequate data base necessary for the tests cannot be developed until the procedural requirements have been delineated on a task-by-task basis.

With one or two possible exceptions, the Regions have made no serious attempt to determine the resource needs of the program based on detailed assessments of the work required. Lacking the data and supporting analysis, the Regions have been forced to develop their program plans on a "make do" basis, with resource allocations arbitrarily established by EPA Headquarters.

Existing Procedural Guidance

Written guidance governing administration of the Construction Grants Program is provided in several documents.

Federal Water Pollution Control Act Amendments of 1972 and the Supporting "Title II Regulations." These documents direct the Federal role as well as delineate the grant-related requirements for applicants, grantees, and State agencies. For example, when Section 201(g)(1) of the Act states that, "The Administrator shall

not approve any grant after July 1, 1973, for treatment works under this Section unless the applicant shows to the satisfaction of the Administrator that each sewer collection system discharging into such treatment works is not subject to excessive infiltration." It is clear that the Federal grant application review must consider the infiltration question. By way of another example, the grant regulations state in Section 35.925 that "before awarding initial grant assistance . . . the Regional Administrator shall determine that the facilities planning requirements have been met." Thus, a review of the applicant's facilities plans is a prerequisite to any grant award for the design and construction of a treatment works.

What is not so clear, nor easily understood, is the basic standard of evaluation that EPA will use in judging what constitutes "excessive infiltration," or whether "facilities planning requirements" have been met. No basic review procedures for these and other requirements have been clearly established.

Other Published EPA Regulations and Guidance. EPA has published certain additional regulations and guidelines which bear upon the requirements of the 1972 Amendments. Included are: (1) *Secondary Treatment Information Regulations*; (2) *Proposed Alternative Waste Management Techniques for Best Practicable Waste Treatment Information Guidance*; (3) *Guidance for Facilities Planning*; and (4) *Guidance for Sewer System Evaluation*. All four publications are designed primarily for grant applicants. Although information contained within them provides implicit direction to the EPA reviewer, specific procedural guidance needed for consistency and effectiveness is lacking.

Construction Grant Program Guidance Series. In May 1973 the Municipal Construction Division started compiling all Regional policy memoranda that concern the Construction Grants Program. The compilation, the *Program Guidance Series*, provides a certain amount of procedural guidance with regard to special circumstances, such as the processing of reimbursement grants. It does not provide, however, a comprehensive treatment of procedures. A major failing of the Series is that it is a compilation of all memoranda issued, including statements of goals, advance information items, draft statements, and procedural guidance. As a consequence, it includes both current policies on specific items and superseded or discontinued policies.

Federal Guidelines: Design, Operation and Maintenance of Wastewater Treatment Facilities. These Guidelines, which were issued in September 1970, are used by all Regional Offices in the review of applications. They were designed specifically for the applicant's use, but they also provide implicit guidance to the EPA reviewer, particularly with regard to Step 1 projects. The Guidelines are a useful tool for the Regional Offices, but they do not provide comprehensive procedural guidance. Furthermore, they have been largely outdated by the 1972 Amendments, except for the parts pertaining to project operations and maintenance which have been updated.

Technical Bulletin Supplement to Federal Guidelines: Design, Operation and Maintenance of Wastewater Treatment Facilities, Design Criteria for Mechanical, Electric and Fluid System and Component Reliability. This bulletin, published in January 1974, provides technical guidance, but it is very limited in procedural guidance.

Handbook of Procedures: FWPCA Construction Grants and Engineering Program. This handbook, issued in 1969, still influences the procedures followed by Regional Offices in implementing certain facets of the Construction Grants Program. For example, the chapter concerning the advertising and award of contracts serves the Regions as a procedural reference source, in the absence of more recent guidance. The handbook is a revised version of an original Health Grants Manual issued by the U.S. Public Health Service. As such, it represents a compilation of long established procedural precedents. With enactment of the 1972 Amendments, much of the Handbook became outdated and could not be used by the Regional Offices. Besides being outdated, the handbook is deficient in that many construction grant system components are covered only briefly. For example, only one short paragraph is used to describe Regional Office review procedures of construction plans and specifications.

Grants Administration Manual. This manual, which is kept current by the Grants Administration Division, concerns only administrative items applicable to grants of all types.

Draft Sample Agreement for Certification of Adequacy of Certain Documents Relating to Wastewater Treatment Facility Construction Grant Applications. This sample agreement was developed for Regional Offices negotiating with State agencies about to assume certain responsibilities under the Construction Grants Program. The sample agreement provides detailed procedural guidance for the review of construction plans and specifications.

Regional Procedures. Several Regions have developed procedures covering various elements of the Construction Grants Program.

Construction Grants Manual

The existing fragmented system of procedural guidance with its omissions, inconsistencies, contradictions, and lack of means for assessing program effectiveness or resource requirements can no longer be accepted. To improve the situation, the Review Group examined two remedial approaches: the revision and expansion of existing information sources, and the development of a Construction Grants Manual.

The Review Group concludes that the Manual offers greater advantages because it:

- Provides comprehensive sequential coverage of the construction grants system from the allocation of funds and setting of project priorities, through the post-completion stage of project operation.
- Provides separate guidance on specific functional areas such as accounting, audits, and procurement.
- Provides easy reference and cross-reference of information through a codification system.
- Permits easy revision by being compiled in a loose-leaf format.
- Provides focus and user utility by being separated into two volumes: a State/municipal volume and an EPA volume.

We recommend that comprehensive procedural guidance be issued in the form of an integrated construction grants manual, with separate volumes for municipal/State agency actions and EPA Regional and Headquarters actions.

A preliminary list of components has been prepared (Table IX-1). Supporting materials in draft or approved form already exist for many of the proposed components. All materials, however, will require modification to conform with the proposed format. In order that the most needed components might be completed without delay, the Review Group has assigned completion priorities.

The Review Group recognizes that in order to establish accountability, a single official should have overall responsibility for the manual. The Office of Water Program Operations handles the major functions required by the construction grants process. Accordingly, ***we recommend that the development and maintenance of the construction grants manual be supervised by the Deputy Assistant Administrator for Water Program Operations.***

The manual components should be developed by those offices responsible for the functions involved. The Review Group has tentatively identified the organizational units that would have lead drafting responsibilities.

The manual should provide background information covering relevant statutory language, regulations, and other official guidance pertaining to the program. In addition, it should present, in *concise form* for each component: (1) a statement of specific objectives, (2) checklists of items to be covered, and (3) the minimum standards of acceptance or performance. In each instance, the guidance should be designed to guide the user in his work, but not to restrict his professional judgment.

Coordination of the work should be performed by a task force including representation from: (1) the Municipal Construction Division, (2) the Municipal Permits and Operations Division, (3) Water Planning Division, (4) the Grants Administration Division, (5) the Office of General Counsel for Grants, and (6) at least two Regional Offices. The individual task force representatives should devote full time to development of the manual at least to the completion of all components within their office's responsibility. ***We recommend that a Construction Grants Manual Task Force be established to coordinate development of the manual. A small full-time staff should be assigned to the Municipal Construction Division***

TABLE IN 1

OUTLINE OF CONSTRUCTION GRANTS MANUAL

	Components	Local State Manual	EPA Manual	Status[1]	Priority[2]	Level[3]
I	General					
	Purpose	x	x	D	L	H
	Authority	x	x	D	L	H
	Program strategy	x	x		M	H
	Flow chart	x	x		L	H
	Definitions	x	x		L	H
II	Allocation of Funds					
	Needs Survey	x	x	D	M	WP
	Allotment to States		x	D	M	GA
	Reallotment of funds		x	D	M	GA
	Allocation of additional funds	x		D	M	GA
	Reserve for Step 1 and Step 2 projects	x		D	M	GA
III	Project Priority					
	State priority criteria	x		A	M	P
	Municipal discharge inventory	x		A	M	P
	Project priority list	x		A	M	P
	Public participation	x		A	M	P
	EPA review and acceptance		x	A	H	P
IV	State Planning Process					
	State strategy and program (Sec. 106)	x		A	M	P
	303 (e) basin plans	x		A	M	P
	208 areawide waste management plans	x		A	M	P
	EPA review and acceptance of State plans		x	A	H	P

1 D = Draft
A = Approved guidance
2 L = Low
M = Medium
H = High
3 H = Hold Points
WP = Water Planning
P = Program Planning
GA = Grants Administration
A = Audit

TABLE IX-1 (Continued)

	Component	Local State Manual	EPA Manual	Status*	Priority†	Level‡
V	Preapplication					
	Preapplication conference	X	X		H	WP
	Engineering Consultant procurement (Sec 508) and clearing house review	X			I	GA
VI	Facilities Planning - Step I Grant					
	Grant application and award	X	X	A	M	GA
	Facilities planning conferences	X	X		M	P
	Facilities planning process	X		A	M	P
	Planning considerations	X		A	M	P
	Monetary cost evaluation	X		A	M	P
	Environmental evaluation	X		A	M	P
	Plan selection and implementation	X		A	M	P
	Public involvement	X		A	M	P
	Reports	X		A	M	P
	Review certification and approval of plans	X	X	A	H	P
	Infiltration/inflow (I/I) analysis	X		A	H	P
	Sewer system evaluation survey	X		A	M	WP
	Review of I/I analysis and sewer survey		X	A	M	WP
VII	Plans and Specifications - Step II Grant					
	Grant application and award (amended Step II	X	X		H	GA
	Grant application and award (no Step II	X	X		H	GA
	Pre design conferences	X	X		H	WP
	Design guidelines	X			H	WP
	Preparation of staffing plan	X			H	WP
	Operation and maintenance guidelines	X		A	M	WP
	Plans and specifications review		X	A	H	WP

TABLE IX-1 (Continued)

Components	Local State Manual	EPA Manual	Status[a]	Priority[]	Lead[]
VIII Construction: Step 3 Grant					
Grant application and award (amended Steps 1 and/or Step 2)	x	x		H	GA
Grant application and award (no Step 1 or 2)	x	x		H	GA
Contractor procurement (see XII)					GA
Reconsideration of environmental impacts		x		M	WP
Review of staffing plan		x		H	WP
Preconstruction conference	x	x		H	WP
EE/H R conferences[b] (see XIII)					WP
Sewer use ordinances	x			H	WP
Construction reports	x			M	WP
Contract modifications change orders	x			H	GA
Contract modifications change order review		x		H	WP
Resident engineer	x			H	WP
Construction inspections		x		H	WP
Operation and maintenance manual	x		A	M	WP
Operation and maintenance manual review		x	A	H	WP
IX Municipal Permit Assurance					
Self monitoring reports	x		A	H	WI
Operation and maintenance inspections		x	H	M	WP
EE/H R audits (see XIII)					
X Accounting For Costs					
Records	x		H	M	GA
Allowability	x		H	M	GA
Allocability	x		H	M	GA
Reconciliations	x		H	M	GA
Direct costs	x		H	M	GA
Indirect costs	x		H	M	GA
Credits	x		H	M	GA
Property and equipment	x		H	M	GA
Final settlement Audits (see XIV)	x	x	H	M	GA

TABLE IX-1 (Continued)

Component	Local/State Manual	EPA Manual	Status*	Priority†	Lead‡
XI. Grant Payments					
Initial payments	x	x	D	M	GA
Interim payments	x	x	D	M	GA
Adjustments	x	x	D	M	GA
Refunds, rebates, credits	x	x	D	M	GA
Final payment	x	x	D	M	GA
XII. Procurement					
Formally advertised (e.g., construction contracts)					
Bid advertising	x			H	GA
Selection	x			H	GA
Bid tabulation review		x		H	GA
Award	x			M	GA
Negotiated (e.g., engineering consultant)					
Competition/ non-competition	x			H	GA
Cost analysis	x			H	GA
Negotiation and award	x			H	GA
Contract provisions	x	x	A	M	GA
Debarment and suspension lists	x			M	GA
XIII. User Charge/Industrial Cost Recovery					
Cost determination/ accounting	x		D	M	WP
Intermunicipal agreements	x			H	WP
Cost recovery (I/I/R)	x		D	M	WP
I/I/R conference	x	x		M	WP
I/I/R review		x		M	WP
I/I/R audits (see XIV)					
XIV. Audits					
Preconstruction		x		H	A
Construction		x	D	H	A
Final		x	D	H	A
Industrial cost recovery		x		L	A
XV. Management Systems					
Grants information control system		x	D	H	GA
Project management	x			M	WP
Program evaluation and assistance		x		L	WP

*User charge/Industrial Cost Recovery.

to handle continued updating of the manual. Completion of the manual should receive high priority. We recommend that components of the construction grants manual assigned high priority be completed by January 1, 1975; those with medium priority by March 1, 1975, and the entire manual completed by July 1, 1975.

APPENDIX A. RESULTS OF STUDY TO DETERMINE ADEQUACY OF ENVIRONMENTAL ASSESSMENTS AND APPRAISALS

On August 1-2, 1974, a six-member team from Headquarters and Region III evaluated the supporting documentation of negative declarations filed on 43 projects from nine Regions. The assessments and appraisals were evaluated for their adequacy in following the regulations and guidance set forth by Headquarters.

The six team members were:

David Eberly	Water Program Operations
Stan Hill	Water Program Operations
Kevin Warren	Water Program Operations
Ned Coats	Office of Federal Activities
Gail Bringer	Office of Planning and Management
Bob Blaszczak	Region III

The 43 projects were selected on two bases: size (most were $2 million or more) and date (only negative declarations filed within the past 6 months were used). They were evaluated for the completeness of discussion of the following areas:

- Expected environmental impact
- Structural alternatives considered
- Nonstructural alternatives considered
- Possible growth implications
- Public involvement

Several weeks before the evaluation, the review team met to develop the evaluation form. Two meetings were held to discuss in detail what material should be included in assessments and appraisals. The team decided that for the purpose of this study, information would be credited if it was included in either the assessment or the appraisal. During this period, the form was revised twice. (final form used follows this discussion).

The next step was to have everyone on the team evaluate and score two projects. The team then discussed the results. This exercise was extremely useful in minimizing any scoring differences. In these discussions, Mr. Blaszczak was extremely helpful in toning down the high expectations of the Headquarters staff to what he felt was more reasonable.

The remaining 41 projects were divided into three groups, as were the six team members. For 2 days, the three groups read, evaluated, and scored their projects. A short meeting was held at the end of the first day to discuss any problems. When each team completed its reviews, it met to resolve any wide difference of opinion. The full group then met again to collate scores and to discuss overall conclusions and findings.

Results

A score of 3.5 was considered acceptable. None of the 43 projects was considered acceptable:

Score	Projects
0 - 1	10
1.0 - 1.4	5
1.5 - 1.9	5
2.0 - 2.4	5
2.5 - 2.7	9
2.7 - 2.9	6
3.0 - 3.3	3
3.4 - 3.9	0
4.0 - 4.0	0

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Other Findings

1) Generally, assessments and appraisals had the most complete discussion of the environmental effects of the proposed action. Next best coverage was the discussion of structural alternatives. Most documents were badly lacking in the area of nonstructural alternatives and secondary effects. If growth was mentioned at all, it was usually in terms of restating the assertions of the applicant.

2) Often when the Grantee had submitted a poor assessment, the Region had attempted to compensate by adding the missing material. While such effort is laudable, this should *not* be Agency policy. Poor assessments should be returned to the applicant for reworking.

3) Most of the assessments and appraisals referred only to one project. Since many of the awards made each year are in communities where two or more related projects are such being planned, it is likely that many of the documents reviewed were for projects located in communities. This is contrary to Headquarters guidance which suggests that assessments and appraisals refer to more than one project wherever appropriate.

4) The negative declarations filed on these 43 projects could not be justified on the material reviewed. It is possible that the decision-makers in the Regional Offices had additional information that would justify the decisions.

Name of Project _____ Name of Reviewer _____

EVALUATION OF ADEQUACY OF ENVIRONMENTAL ASSESSMENTS AND APPRAISALS

SCORE 0–5 (0 = not considered at all, 5 = careful, detailed discussion. Use n.a. when an item is not applicable to the project in question. Information is to be considered included if it appears in either the assessment or appraisal. Use back of form for additional comments.)

I. Completeness: thoroughness and reasonableness of argument

1. Impact of proposed action on the environment
   - –water (ground, surface, ocean–look for quality and quantity) _____
   - –air (sludge incineration) _____
   - –geology and geography (incl. fault lines) _____
   - –biology (endangered species and wildlife habitat affected) _____
   - –aesthetics (odor, design, noise) _____

2. Alternatatives to the proposed action

   A. Structural alternatives
   - –siting (plant–incl. flood plains) _____
   - –treatment effluent disposal methods, e.g., surface water outfall, land disposal, industrial, recycling, ocean outfall _____
   - –alternative interceptor locations _____
   - –sludge disposal alternatives, e.g., land, ocean, incineration _____

   B. Non-structural alternatives (options that can reduce the need for a new facility)
   - –flow and waste reduction measures _____
   - –improving operational efficiency of existing plant _____

3. Secondary impacts resulting from the proposed action
   - –review of population projections _____
   - –reasonableness and effects of excess capacity _____
   - –growth impacts of interceptor routes _____

II. Evidence of public involvement

1. Has there been a public hearing (yes = 5) _____
2. Other evidence of public involvement _____

total score (a) _____
applicable items (b) _____

Final score = (a) divided by (b) _____

0–item not discussed at all
1–item discussed but only in superfluous manner
2–item discussed, but many important factors missing from discussion
4–item discussed, but only minor factors missing from discussion
5–item discussed in complete, thorough and reasonable manner